



College AND UNIVERSITY Business

**APRIL 1947: University Management • Flat Fee for the
Smaller College • Survey of Nonacademic Wages • Key
Control • State Tax Exemptions • Two College Unions**

GUEST EDITORIAL

Suggestions on Federal Financing

THERE IS EVERY REASON TO BELIEVE THAT OUR federal government must assume considerably more responsibility for the total task of higher education than it has done in the past. This leads to a brief discussion of the question as to the kind of machinery needed at the federal level for administering federal financial aid to higher education.

Colleges and universities at present are dealing with many different agencies. Many difficulties present themselves in these relationships. Requirements of these agencies vary considerably. Each division of the government has a more or less different approach to the activities in its own field. There is variation even between bureaus of other subdivisions of the same department. Each of these relationships involves great expenditure of administrative time and in most cases is fraught with considerable difficulty.

These situations are burdensome not merely to the institutional offices that handle these contracts but to the staffs of the educational departments that deal with these agencies. Generally speaking, governmental departments fail to recognize that a university is a responsible, nonprofit institution, primarily interested in educational and research objectives in the public interest. Administrative staffs of the government departments seem to feel that they have to check the institution at every point in the program of these activities both on the question of methods of research and on the details of financial procedure.

Among the most difficult and time consuming phases of the relationship are these of (a) obtaining recovery of costs incident to government programs for which the government should pay and (b) meeting the administrative requirements as to the specific form of presentation of claims for reimbursement.

While no one would expect a sovereign government to pay over public money to an institution without a clear understanding as to the purposes for which it is to be used and without a complete and adequate accounting therefor, the future development of federal financial aid to higher education should be along lines that will simplify methods of administration, both for the government and for the institution, and eliminate federal control of operating and educational policy. Ways simply must be found to coordinate and improve present procedures so as to expedite and simplify operation and relieve the administrative burdens now inherent in the present system. The following suggestions are offered to this end:

1. Grants or programs should be expressed in the broadest terms possible and preferably should be for nonrecurring purposes.
2. The institution should be left with a free hand as to the methods of conduct of the programs and the details of financial operation.
3. The requirements placed upon the institution should be: (a) the accomplishment to the greatest extent possible of the objectives of the grant or program and a full report of what has been accomplished, and (b) a certified accounting of the expenditure of funds.

Frankly, I am doubtful as to whether it would be feasible to centralize all activities in a single agency. Such an agency would have to turn in each instance to the particular division of government responsible for that particular operation. The result probably would be another step added to the process rather than any real simplification. The situation probably would be improved if there could be established, for example, a uniform research contract and uniform principles of reimbursement for all agencies. Such an arrangement would eliminate the necessity of argument with each separate agency on the content and provisions of its own contract.—LLOYD MOREY, *comptroller, University of Illinois*.



College AND UNIVERSITY Business

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In this issue:

Suggestions on Federal Financing, Guest Editorial.....	op. 1
LLOYD MOREY	
Looking Forward, Editorials.....	3
Administrative Management in a University.....	4
FRANK PIEPER	
Carleton Tries a Flat Fee.....	7
BRUCE POLLOCK	
Safeguarding Endowments.....	8
JOHN O. GROSS	
To Build or Not to Build in 1947.....	9
A. W. PETERSON	
Financing and Operating a Student Center.....	11
WINSLOW S. ANDERSON	
Ripon Builds a College Union.....	12
ROBERT G. RASHID	
This Building for Food Only.....	15
LYNN W. FRY	
Faculty Quarters in 145 Days.....	18
COL. ALLEN R. ELLIOTT	
What About Nonacademic Wages?	
Continuing Study of Operating Practice.....	20
ROBERT F. MOORE	
Alumni Secretary and His Job.....	22
JOSEPH F. MANAK Jr.	
Federal Funds Go to College.....	23
ERNEST V. HOLLIS	
Amherst's System of Key Control.....	26
HERBERT F. JOHNSON	
Maintenance Methods in the Middle East.....	28
AZIZ K. NAHHAS	
It's Not the Size, It's the System in Bookstores.....	30
ARNOLD E. KNUTSON	
High Altitude Cooking.....	32
EMMA J. THIESSEN	
Safety Can Be Bought.....	34
L. W. HAGERUP	
Exemption From State Taxes.....	35
M. M. CHAMBERS	
Questions and Answers.....	37
Roving Reporter.....	38
News of the Month.....	39
Directory of Associations.....	44
Product Information and Advertising.....	45
What's New.....	68
Want Advertisements.....	71

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Among the Authors



W. S. ANDERSON

DR. WINSLOW S. ANDERSON, president of Whitman College, discusses in this issue problems in financing and operating a college union building in a small college. He served fourteen years as dean of Rollins College in Florida before accepting his present appointment. Dr. Anderson dabbles in amateur magic and photography and admits a penchant for detective stories. . . .

FRANK PIEPER, a management consultant of the Public Administration Service in Chicago, has had wide experience as a consultant on administrative management, personnel management, office organization and procedure for state and federal agencies and has been supervisor of many special surveys for colleges and universities.



E. V. HOLLIS

ERNEST V. HOLLIS, chief, veterans' educational facilities program of the U. S. Office of Education, is responsible for coordinating the work of colleges and universities and that of the various federal agencies dealing with surplus materials, construction programs and the like. A well known leader in the field of higher education, he has written several books and has served extensively as a consultant on

fund raising problems. He has traveled widely in this country, Canada, Mexico and Central America.



EMMA THIESSEN

EMMA J. THIESSEN, associate professor of home economics at the University of Wyoming, is a recognized expert on high altitude cooking and baking and the author of many pertinent articles. She is consistent with the professional tradition in her family: three sisters are dentists; a brother is a doctor. Also concerned with food problems, LYNN W. FRY, the supervisor of plant extension at the University of

Michigan, served as state architect for Michigan five years and spent sixteen years in private practice before accepting his present position in 1942. In this issue, he describes the new food service building at the university. Veteran of World War I, and active sportsman, he now indulges in small-scale farming as a hobby.



A. K. NAHHAS

AZIZ K. NAHHAS, superintendent of buildings and grounds at the American University of Beirut in the republic of Lebanon, tells of life and maintenance problems in the Middle East. After extensive travel, observing buildings and grounds departments of colleges and universities here, he concludes that many are overorganized . . . but "we've an awful lot to learn in regard to technical efficiency

in the Middle East." . . . ARNOLD E. KNUTSON, manager of the Teachers College bookstore at Columbia University and formerly a public accountant, was at one time in charge of purchases and sales for the Drake University bookstore, Des Moines, Iowa. During the war he served a four year hitch with the amphibious forces of the coast guard. Hobbies: golf, bridge and gardening. Results: failure—ball fails to fly, cards won't fall, weeds win!

Looking Forward

New Faces at Conventions

AS THE CONVENTION SEASON ROLLS AROUND, IT would be wise for college administrators to provide for wider representation of junior or subordinate personnel at these meetings. What is sauce for the chief executive ought to be sauce for his associates.

Conventions for college administrative officials may well serve as a training ground for personnel newly entering the administrative field. Here they get an opportunity to study the problems of comparable institutions and to evaluate their own technics. Professional growth, in part, comes from such professional contacts and comparative analyses.

While it is taken for granted that each college will be represented at all 1947 conventions that directly attack its own problems, the value of a convention to a college will be enhanced if wider representation and participation of staff personnel are encouraged.

Without Strings

INCREASING INTEREST ON THE PART OF THE federal government in financing research in colleges and universities is a trend to be watched. It constitutes both an opportunity and a threat to the future of higher education.

One of its inherent dangers is the possibility that colleges and universities accepting grants for federal government research may find their independence sharply curtailed. The institution must retain the right of assignment and supervision of personnel to research projects; the researcher is an employe of the college or university, not of the federal government. The institution must decide whether it wishes to be confined to subjects of research designated by the government. It is doubtful that many colleges or universities will have sufficient personnel or funds to permit independent research other than that financed by the government if too many government contracts are sought or accepted.

Another danger to be guarded against is the application for government research contracts for which the institution is inadequately equipped or staffed. The temptation to obtain government funds for research may cause some institutions to embark on programs that will so dislocate normal routines as to jeopardize their entire educational function. After all, is not the major purpose of a college or university

to provide an educational opportunity for its students? If preoccupation with government research results in neglecting the students' needs, it might be infinitely wiser for a college to refrain from a government research program.

The opportunity for higher education in federal financing of research is the possibility of society's improvement which might not otherwise be possible because of the financial limitations of specific institutions. Such improvement of society as might result from government research should certainly be chalked up on the credit side of the ledger.

One of the significant steps being taken at the present time in setting up a unified approach to this problem of federal financing of government research is the work being done by a committee of college and university business officers under the direction of Dr. R. B. Stewart, vice president and controller of Purdue University. It is hoped that the committee's recommendations may become the official policy in placing contracts for government research.

Are We G.I. Crazy?

LEADING COLLEGE ADMINISTRATORS ARE BEGINNING to raise the question as to whether the best interests of the G.I. student are being served by the wholesale expansion of college and university facilities. Too often it has meant the creation of minimum housing facilities and inadequate instruction.

There is a point of diminishing return in providing a high standard of educational opportunity for students. That point is reached when it becomes necessary to sacrifice the quality of teaching by addition of faculty members who are inadequately trained. Too many colleges, to accommodate the flood of G.I. registrations, have been forced to draft instructional personnel that would never have measured up to prewar standards. The entire future of higher education is jeopardized by such improvisation.

Under the patriotic pressure to be of service to the G.I. student, some colleges have lost their sense of direction. It is doubtful whether either the student or the institution profits from such expediency. Education, *per se*, is not the solution for all of society's ills. Teaching that instructs and inspires creative thinking might be. This end result is not likely to be achieved as a result of poor facilities, overcrowding or inferior faculty.



ADMINISTRATIVE *Management*

FRANK PIEPER

Management Consultant, Field Staff
Public Administrative Service, Chicago

UNPRECEDENTED STRAIN IS BEING placed on the administrative machinery of nearly every college and university in America. The phenomenal increase in student enrollment and the great expansion of research, student guidance and public service activities have combined to demand the utmost utilization of all facilities.

In every phase of school administration the added load is making management machinery creak. In many institutions the situation is so serious that major operational breakdowns are possible. It is time that our higher educational institutions take stock of how they are administratively equipped to do the job that has fallen to them.

MUST ASSUME FULL TASK

Within each institution the responsibility for taking this inventory must fall on the chief executive (chancellor or president). Far too many college and university presidents think of themselves primarily as educators. Only occasionally do they regard themselves as administrators of one of the most complex organizational structures ever devised—with management problems as difficult and even more difficult than those which plague the heads of business establishments, governments and armies.

Of course, teaching is the *raison d'être* of an educational institution and a university president's reputation for academic leadership is of value to the school and the community, but this element should not overshadow the fact that problems of administrative management form by far the largest part of his responsibility. To the extent that he shifts or denies this responsibility, he fails to perform the principal part of his job.

The chief executive of a large university has as important an administrative position as the head of most leading industrial concerns and large governmental units. In fact, few business executives are faced with comparably difficult administrative problems of planning, organization, delegation, supervision, coordination, control and reporting. The diversity of activity of a university is tremendous; it represents almost every known form of business. Instead of the problems of keeping large groups of similarly skilled and unskilled workers in "office" and "shop" (the two segments of most businesses) smoothly functioning, a university president must weld an effectively cooperating organization out of faculty teaching in every known field of knowledge, research experts exploring every unknown field

of knowledge, professional service employees and clerical, trades, labor and other housekeeping groups.

From the point of view of administrative responsibility, the university president is also in a more difficult position than is the business executive. The latter is responsible only to his board of directors and (in the more democratic firms) to his employees; the former has at least five major groups to which he must answer for administrative actions affecting the service the university renders: (1) the board of regents, (2) students, (3) employees (both faculty and service groups), (4) alumni and (5) the general public.

LIKE CITY MANAGER'S JOB

In comparing his job to those of administrators of large governmental units, the university president can also pause to consider the management difficulties of his position. For instance, universities provide numerous services for their students and the public as do large cities for their citizens: complicated educational services, library facilities, hospitals and outpatient clinics, housing projects, police and fire protection, recreation programs, welfare and student counseling services and "public works" depart-

IN A UNIVERSITY

ments which carry on large construction and maintenance operations on buildings, park areas, roads and tunnels and which supply heat, light and other utilities.

In addition, many universities run restaurants or cafeterias, laundries, creameries, printing plants, museums, art galleries, radio stations, million dollar public athletic and cultural events programs and complicated research programs requiring the best of technical and administrative talent. But how often is the job of a university president considered as difficult, administratively, as that of the city manager of a metropolitan center of 500,000 people?

MUST AVOID OVERDELEGATION

The tremendous complexity and volume of university activities make their administration particularly difficult. To manage such varied programs properly, a man of great administrative ability as well as academic brilliance is required in the position of chief executive. And "proper" management means that the executive shall not avoid any of his responsibilities by overdelegation of authority. It is his duty, as the principal administrative officer, to plan, organize, coordinate and control both "academic" and "non-

academic" programs, within themselves and with each other. To be a responsible and effective chief executive, he should be the center of energy, direction and administrative management.

Only with this administrative concept of his job can any university president hope to function adequately in it. But in addition to the concept the executive needs administrative tools with which to do his job. What are these tools?

Proper administrative organization is the most important tool. From the top to the bottom of the administrative hierarchy (which must be kept flexible), management functions should be logically organized and allocated and information should be able to flow up, down and across the organization with ease.

The chief executive, in making his survey of the situation, should start by looking at the organization of his own office. And by "office" is not meant his own secretary and file clerks, although few university presidents at the present time have more than such clerical aid.

The president of a large university, if he is to perform his administrative task properly, needs executive assistance of a high caliber attached to his own office. Such assistance should provide him with immediate, institution wide control and coordination of five "key" management functions: (1) planning, (2) budgeting, (3) administrative management and organization studies, (4) personnel administration and (5) public relations.

FOUR MANAGEMENT ARMS

In the largest universities, these functions probably should be vested in four separate offices. These offices should report directly to the president. They are the management arms he must have in order to participate in administration:

1. *Office of University Planning.* A university planning board of three or five members should be charged with the duty of initiating, supervising and reporting to the president on studies of broad problems related to institutional development and resources. It should have a secretary technically competent to gather information and develop reports on educational, engineering, economic and sociological subjects.

2. *Office of Administrative Management and Budgeting.* This unit, headed by a director, should conduct organ-

izational and procedural analysis (management efficiency) studies in cooperation with operating departments and should be responsible for analyzing, organizing and making recommendations to the president with respect to budget requests.

3. *Office of Personnel Administration.* This unit, headed by a director, should conduct a complete personnel program for all employees (teaching and nonteaching) as a service to operating departments and as the representative of the president. An advisory personnel board could be created also to which both the president and the office of personnel administration could turn for review and constructive criticism of personnel administration. Such a board, however, should have no administrative responsibilities.

4. *Office of Public Relations.* This unit, headed by a director, should be charged with coordinating, in the president's name, the issue of all public information on university operations and should be responsible for all press and radio relations affecting university management policy.

MAY BE FIGUREHEAD ONLY

With these management arms at his immediate command, the university president has the principal tools he needs to plan, organize, coordinate and control the operations of the entire institution. With them, he becomes an administrator.

Without these management arms, the university president can only know how university operations are being planned, organized, staffed and controlled by consulting his operating department heads; this means he knows and administers little since operating department chiefs are usually extremely reluctant, for one reason or another, to transmit necessary information upward. Without these management arms, it is impossible for a university president to be much more than a figurehead.

This does not mean, in any sense, that these management arms of the president are to act as his spies on operating departments. They must, rather, be his service agencies, working in cooperation with operating departments. They should provide the departments with services that will ease the departmental administrative load at the same time that they make the president an administrator.

Neither does this mean that the president should not delegate author-

ity to operating departments. Proper delegation of authority is as important to successful administration as are control and coordination. Assignments should be given with the understanding that the departmental administrator has unfettered freedom and authority to carry them out as he knows best. The management arms of an executive office should never hamstring departmental management.

But many chief administrators fail to fathom the fact that the management arm functions cannot be delegated completely if control and coordination are to be retained. The most important among the management arm functions are those of planning, budgeting and personnel administration. Every administrator, whether he be the foreman of a labor crew or a university president, must plan how he will carry out the program of his unit; must make certain that there are funds available to meet costs and budget their use, and must assign and control the personnel that is to do the job. Without immediate knowledge of these items, there is no administration.

ASSISTANT NEEDED

The labor foreman can know, or do, all these things himself. Upon finding that he has an unduly limited amount of money with which to complete the digging of a ditch, he will plan to cut the ditch narrower or in some other way reduce costs and will assign and control his laborers accordingly. The university president, on the other hand, needs executive assistance to keep abreast of these knowledges which are so essential to management.

In addition to the four offices suggested as necessary to carry out management arm functions for the chief executive of a large university, a posi-

tion of administrative assistant to the president of most such educational institutions would be highly desirable. The person filling this job should be capable of acting as administrative liaison agent for the president with his management arm and operating agencies. The administrator, frequently occupied with speaking engagements and other nonadministrative responsibilities, needs a representative: (1) to keep him fully acquainted with administrative problems from an overall point of view by quickly obtaining all pertinent information needed to guide important decisions; (2) to keep his aides and department heads cognizant of his desires by seeing to it that every department affected is promptly informed of executive decisions, and (3) to perform management detail and legwork that might otherwise prevent the president from accomplishing the more important tasks of administration.

This assistant, however, should not make decisions or issue instructions in his own right. He should always act in the president's name, never in his own. And most important, he should be a clearing house, not a barrier, between the president and department heads.

Most presidents of large universities, overwhelmed by operating problems as they are today, would probably welcome the administrative Utopia of management assistance as outlined here. Some have already begun the process of attaching the management arm functions to their offices by creation of personnel, public relations or budgeting offices responsible directly to them. These few recognize their administrative problem and have set forth to conquer it.

Other chief educational executives, who reign but do not rule in institu-

tions where the five principal management functions have been delegated completely to operating officials, will find that with study, diplomacy and a significant amount of firmness they can gradually shift responsibilities so that they themselves effectively participate in day to day administrative management. In many of the latter schools, management agencies, such as personnel departments and budget units, exist but do not report to the president. Slight changes in their reporting channels, some expansion and a little regrouping of their activities will, somewhat slowly but easily, bring into existence at least part of the necessary top management structure.

TAKING OVER LOST REINS

Still other university presidents, however, will falsely anticipate and so fear the ire of operating department heads and deans that they may hesitate to assume proper administrative responsibility by taking lost reins of control into their own hands. Such executives should realize that those department heads who are good administrators will welcome top management leadership (and severely criticize a lack of it), while those who are not good administrators must be either coaxed or coerced into accepting efficient administration in the best interests of the institution.

The principles of scientific administrative management must be applied in our educational institutions as they are in the best of our large industrial plants if we are to be successful in production line education of technicians and citizens (and perhaps a few administrators) for a production line, atom powered machine age. Mass education of high quality is possible but only superior administrative management will produce it.

From the Trustees' Point of View—

There are specific areas of college and university administration in which the trustee expects his experience to be utilized. Laird Bell, president of the board of trustees at Carleton College, will outline in the May issue those functions that can be best performed by a college trustee.

ONE OF THE MOST SATISFACTORY experiences afforded a higher educationally prospective parent is that of opening a college catalog and finding in one clear, concise, succinct statement the cost of his offspring's education.

Many statements of student expenses begin with a more or less modest charge for tuition but when the fees have been added, a process reminiscent of early days in the automobile business, the total presents a far different appearance. The vehicle is not complete until windshield (useful in some courses), lamps, starter (the analogy should be closer) and various and sundry other gadgets have been installed. Dr. R. B. Stewart of Purdue University, acting as liaison officer between the colleges and the Veterans Administration, reported that the latter found 158 separate fees were being charged by colleges and universities—not all of them, fortunately, by any one school.

To relieve confusion in the minds of parents and students, colleges in increasing numbers have adopted a flat fee variously termed single, inclusive or comprehensive.

BETTER FOR SMALL COLLEGES

The single fee is better suited to the needs of smaller colleges in which all students at some time during their sojourn take courses in many departments than to the larger universities composed of several complete units in which charges vary greatly. There is little disadvantage to the individual student in the small college in consolidating laboratory fees, charges for field trips, extra hours, health service, hospital, the student activity fee and all similar charges with tuition and board and possibly room rent.

There is a distinction between fees that are in the nature of tuition and those designed for other purposes, such as protection or replacement of college property or fines or penalties for omissions or neglect on the part of students. It would seem necessary to continue breakage deposits in scientific laboratories and property damage deposits generally. This would hold true in penalties for late registration, late settlement of accounts and library and health service fines but whether charges for extra hours, spe-

CARLETON TRIES A FLAT FEE *and likes it*

BRUCE POLLOCK

Treasurer and Business Manager, Carleton College

cial examinations and transcripts should be made separately is open to question.

Eleven years ago Carleton adopted an inclusive fee referred to in the catalog as "total fixed charges," including cost of board but not of rooms, but gave it up as a bad job and returned the following year to the complex system of separate charges for tuition, board and room and various services. For the present year Carleton has attempted, without attaining perfection, to consolidate all charges, tuition, room and board and all departmental fees, matriculation, graduation and the student activity fee. Students receive campus directories and the weekly student paper without additional cost but are expected to pay for a literary magazine and the college annual.

Tuition in the field of applied music was not considered a sufficiently general charge to be absorbed in payments from all students. For this specialized group, charges for individual instruction and for rent of practice rooms were continued. Other charges which it seemed inexpedient to remit were the application fee, fees for special examinations and transcripts and penalties and fines. The application fee is not refundable. To ensure fulfillment of intent on the part of an admitted applicant, an admissions deposit has been stipulated which will be applied on the account but which will not be refunded except in case of illness of sufficient severity to prevent attendance.

The effort to simplify the statement of student expenses in the catalog fell short of attainment because of abnormal conditions in respect to enrollment and the necessity to allocate a definite part of the fee to cost of tuition for benefit of the Veterans Administration.

Carleton is a residential college. With all students living in the dormitories a fee, including tuition, room and board, would apply to all alike; but with an expanded enrollment necessitating permission for some men students to live in the town and with married veterans, awaiting completion of F.P.H.A. apartments, residing in anything from a hall bedroom to a fairly comfortable apartment, taking all or part of their meals in student dining halls and accompanied by their wives for some of the meals, both the description of charges and the resultant accounting are complicated.

HOW FEE IS BROKEN DOWN

The amount of the fee was set at \$1000, representing an increase of only 8.88 per cent over the average total charges for the first semester of the preceding year projected on a yearly basis and excluding breakage and property damage deposits, music fees and fines and penalties. The increase would not have been sufficient to meet rising salaries and wages and the increased cost of supplies, particularly food, were it not for the larger enrollment. Even in view of the increased number of students in attendance and only slightly increased demand for student aid, the college, like the national government, is able to continue to budget a deficit.

For accounting purposes \$450 is allocated to cost of instruction, \$330 to board and \$210 to room rent. The remaining \$10 is credited to the hospital. This allocation maintains room rent at practically the average for the last many years. It increased board bill by 10 per cent and tuition, without reference to laboratory and fees of that nature, 12½ per cent.

Rentals of dormitories, with few exceptions, have failed to defray cost

of operation, including interest charges and depreciation on both buildings and equipment. Operation of dining halls usually has returned a surplus. The combined operation, with the exception of a few years, has produced a small gain. It seemed logical, therefore, to combine room and board in one charge although there is a wide disparity in rooming accommodations. Under the former schedule a few rooms were rented at from \$140 to \$300 a year. Accommodations varied from comparatively small single or double rooms to those having separate bedroom and living rooms, in many instances equipped with fireplaces and private bath. Several recently reviewed catalogs specify additional fees for rooms with bath.

Whether eventually sufficient dissatisfaction on the part of the students will arise because of the disparity in living conditions to make it necessary to revert to the former practice of charges based on type of accommodations offered remains to be seen. Under present crowded conditions there are few complaints, if any, in this respect.

In the main, with the exceptions noted resulting from emergency conditions, the comprehensive fee has accomplished its purpose. Students and their parents can readily determine the total cost of a year's attendance and are not compelled to add several fees to know what the bill will be, nor is a student discouraged from registering in any course because of the additional costs involved. The change has simplified the work in the business office to a marked extent except, of course, in respect to veterans, in whose direction simplification is impossible.

In the smaller colleges, particularly those providing residence for students, there would seem to be not many considerations in favor of a complex system of tuition and fees so far as cost of instruction is involved but whether subsistence costs, especially room rents, should be included will depend on experience when, if ever, colleges return to normal times.

One advantage of the single charge is its adaptability to economic conditions. It can be raised or lowered without the addition or subtraction of specific fees. It accomplishes the intended result to the extent that all other charges are eliminated and to the degree that administrators resist temptation to add fees for separate services as time goes on.

● SAFEGUARDING ENDOWMENTS

JOHN O. GROSS

Secretary, Department of Educational Institutions, Methodist Church

THE PRINCIPLES AND PRACTICES TO be followed by heads of Methodist educational institutions in the administration, investment and safeguarding of endowment funds have been outlined by the Department of Educational Institutions (General) of the Methodist Church. They follow:

1. Safety of the principal and not maximum income forms the guiding consideration in choosing investments.

2. Individual investments, except government bonds, should seldom exceed 5 per cent of the total fund.

3. Concentration of assets in one or more general kinds of investments should be avoided.

4. Diversification of all investments is important and should be particularly emphasized in the choice of common stocks and other equities.

5. Ordinarily the fund will have at least \$2 invested in sound fixed income securities (bonds, mortgages, preferred stocks) for each \$1 of equities. While the relationship between these two classifications of assets will be flexible and subject to policy change from time to time, equities will never exceed fixed income assets.

6. Common stocks, real estate and other equities should be bought for the most part when prices are below average and the purchase of such holdings should be progressively reduced as prices advance above long term average levels.

7. Preferred stock should not exceed 10 per cent and should be mostly in companies without debt senior to the preferred stock.

8. Bond maturities should be spread over a period of years to avoid the necessity of reinvesting a substantial part of the fund at a single period.

9. Profits on the sale of investment assets should be credited to a special reserve available only for taking losses on other sales.

10. Assets received as gifts should be promptly evaluated and those that do not meet the committee's standards for purchase or are undesirable for other reasons should be either sold

immediately or earmarked for sale.

11. Endowment funds should never be invested in the nonincome producing plant facilities of the college and only in income producing plant units of the college when "yes" is the unqualified answer to the question, "Would this investment be approved if our institution were not involved?"

12. Endowment funds are never lent to the institution nor are its securities used as collateral for a loan to pay current expenses.

13. Investment responsibilities should rest with an investment committee comprised of those members of the board of trustees who, because of ability and experience, are best qualified to handle trust funds.

14. Authority should be given to the investment committee to invest in stocks and bonds, mortgages or real estate or any other type of fund building assets which, in its judgment, are for the best interests of the institution.

15. Endowment investments should never be bought by or sold to a member of the board of trustees or the investment committee or to any such individual who would derive a personal profit from purchases and sales.

16. In order to make sure that security purchases and sales are made at the most advantageous prices, orders should not be placed exclusively with one or more security houses.

17. The investment committee should employ competent and disinterested investment counsel but such counsel should not be obtained from a firm that buys or sells securities.

18. Endowment funds of a church related college should never knowingly be invested in enterprises out of accord with social aims of the church.

19. A custodial arrangement should be made with a bank or trust company having adequately equipped safe deposit facilities.

20. No investment of permanent funds should be made in a loan or a mortgage to any institution or individual when action enforcing collection would prove embarrassing.

TO BUILD OR NOT TO BUILD IN

1947

A. W. PETERSON

Director of Business and Finance
University of Wisconsin

TO BUILD OR NOT TO BUILD IN 1947? That is a question which today plagues officers and governing boards of educational institutions throughout the nation. The need for new and expanded physical plant facilities is great. Funds for new construction are available or can be provided. But high costs have forced many school authorities to postpone the construction of new buildings even when appropriations are available and the need for additional space is urgent.

The construction cost index of the *Engineering News-Record* indicates the reason why governing boards and officers of educational institutions are reluctant or have found it impossible to award contracts for the construction of new buildings. Using 1913 as 100, the comparative indexes in selected years are as follows:

April 1917.....	183.41
(U. S. entered World War I)	
November 1918.....	193.55
(End of World War I)	
Annual Average, 1920.....	251.28
(Highest immediate postwar average)	
Annual Average, 1922.....	174.45
(Lowest immediate postwar average)	
Annual Average, 1929.....	207.02
(Range from 1925-29 was 206.24-208.03)	
Annual Average, 1932.....	156.97
(Lowest average during depression)	
Annual Average, 1941.....	257.84
(U. S. entered World War II)	
Annual Average, 1945.....	307.74
(End of World War II)	
Annual Average, 1946.....	345.74
February 1947.....	390.76

The *Engineering News-Record* indexes are not adjusted for labor efficiency, competitive conditions, management, mechanization or other "intangibles" affecting construction costs. These and other factors that influence local conditions in the construction industry will affect the com-

parative costs of building in different localities throughout the country.

For example, in some midwestern areas there is reliable evidence that construction costs today are approximately 300 per cent of 1938 costs whereas the index would suggest that present costs should be not more than 170 per cent of 1938's. This situation is attributed to the following inflationary conditions which are not reflected in the indexes:

1. Labor performance is substantially below prewar output.
2. Union labor demands seven days' pay for six days' work. The contracts are usually based on a 40 hour week but the men insist on from 48 to 54 hours of employment with premium pay for all overtime.
3. Delays in material deliveries spread the construction program over an abnormally long period, thus increasing overhead costs.
4. Owing to the foregoing uncertainties, contractors and subcontractors will not bid on a fixed price basis without including substantial amounts for contingencies.

Private enterprise, operating for profit, is faced with the same high costs of construction but with not quite the same problem as that of nonprofit educational institutions. The difference lies in the opportunity that private enterprise has to write off its construction costs against earnings. The amounts available to educational institutions for investment in physical plant usually are rigid and, generally speaking, are not recoverable from income. This fundamental difference adds to the difficulties of educational institutions which are in dire need of new buildings at a time when costs are high. Competition for the limited supply of materials and labor places



the nonprofit organizations at a definite disadvantage.

A review of the construction costs indexes may shed some light on the probable trend of future building costs. From April 1917 when the United States entered World War I until the war ended in November 1918, the index rose 10 points. This was an average increase of about 1/2 point a month. From 1918 to 1920 it rose 58 points, or at a rate five times faster than during the war. Those gains were wiped out during the next two years and in 1922, four years after World War I ended, the index was approximately the same as it was at the beginning of the war.

This situation was of short duration, however, and beginning in the middle of 1922 costs rose more or less gradually to a plateau which was about 20 points higher than the average of the war years and some 40 points below the peak of 1920. This general level prevailed until the depression effected a substantial decrease. In brief, costs rose moderately during World War I, continued to rise, but at a faster rate, after the war, then decreased sharply and finally settled at a level somewhat higher than the prevailing costs before and during the war.

The pattern during and subsequent to World War II is similar so far to

that of World War I days. The index rose 50 points between 1941 and 1945, an average of slightly more than one point a month. In fourteen months since Jan. 1, 1946, the index rose from 307.74 to 390.76, an increase of 83 points or at a rate of almost 6 points a month. Again, costs rose moderately during the war and more sharply in the immediate postwar period.

If history repeats and if there are no compensating factors it would appear likely that construction costs soon will decline temporarily, then recover somewhat and finally level off on a plane somewhat higher than the average costs that prevailed during the war years and somewhat lower than present costs.

UNPREDICTABLE FACTORS

Several factors, however, may serve to modify the level of costs. These include: (1) general economic conditions, (2) availability of materials and labor, (3) labor performance and (4) the rate at which the large backlog of construction and maintenance work developed during the war can be liquidated.

Obviously, as long as the demand for housing, industrial and other construction and maintenance work exceeds the supply of labor and materials available to building contractors, the natural laws of supply and demand will tend to keep prices at a high level. How long it will take to catch up with essential repairs and new construction that were deferred during the war years is uncertain. Meanwhile schools will find it difficult to compete with privately financed construction for reasons mentioned.

The marked decrease in labor performance, reported by building contractors and manufacturers of materials, is a serious impediment to normal construction progress. If the average output per man hour is only 60 per cent of prewar performance and the number of workers is far below even normal requirements, the progress will be slow and expensive.

Unless organized labor willingly assumes the responsibility for improving labor efficiency there is little likelihood of increased performance until the supply of workers exceeds the demand. This could mean that little or no improvement will be evident until a general economic recession or depression forces a change.

The training of skilled workers was interrupted by the war and the construction industry is unable today to recruit a sufficient number of workers. Several years will elapse before apprentices now in training will have gained the skills required for journeymen ratings. In the meantime, deaths and retirements have depleted the ranks and the adverse effects of advancing years on the volume of physical work that can be accomplished are becoming evident.

Materials worth billions of dollars were destroyed during the war and the world cannot expect to recover overnight from such waste. In addition to the absolute scarcity of many raw materials, the supply of building materials is limited by labor conditions similar to those that retard construction on the site. The effect of these factors, which are not reflected fully in the indexes of construction costs, may keep prices high for many years.

In the light of these circumstances educational institutions are confronted

with a dilemma. Never before have they been in so great need for additions and improvements to their physical plants. The physical plants of colleges and universities were inadequate before the war interrupted normal construction programs and most of them are woefully deficient now. Reliable evidence points to large student enrollments for an indefinite time. There may be some overall decrease after the veterans leave school but it appears to be certain that even then student enrollments will continue to be larger than before the war.

NO CRYSTAL BALL

The authorities at each institution, of course, must weigh the advantages and disadvantages of building now or of waiting for a more favorable time. Some will decide that it is worth the cost, both in money and in effort, to proceed with the construction of urgently needed facilities. The officers of institutions that undertake new construction work at the present time must prepare themselves to accept delays, disappointments and many annoyances.

Others will decide to get along without the improvements until conditions appear to be more favorable. Those who choose the latter course will face the problem of deciding when they think conditions for building are right.

They probably will find that costs will continue to be high in comparison with prewar costs. Even that generality may be a foolish prediction.

There is no crystal ball into which one can look for an answer. Ten or fifteen years from now we will know what we should have done but at this moment there is no formula that solves the riddle. Each institution must decide for itself which course to follow. The officers and members of the governing boards must base their conclusions on the *need* for new facilities, on their *ability to pay* the cost of building at present prices and on their *judgment* about the future.



EVERYBODY AT WHITMAN COLLEGE wanted a union but its realization was deterred by the usual handicap: money. Whitman College of Walla Walla, Wash., is a private institution deriving no tax support from the state and the cost of a student center would have to be met by contributions.

Plans for financing were begun about two years ago. More than a year's study by a joint student-faculty committee plus consultation with a firm of architects placed the financial goal at \$75,000. With construction costs increasing, this amount has been found inadequate but the total amount needed is in sight.

Whitman's union building is being erected as a living memorial to the college's many men and women who served in World Wars I and II. It was therefore fitting that donations from many individuals rather than from one person enable its construction and the number of contributors runs into many hundreds of individuals in addition to numerous business firms. The idea of a student center with its much needed facilities for students and for the college, with its provision of a common meeting place for students, faculty, alumni and friends of the college, with its dramatic tribute as a war memorial had strong appeal in the campaign.

The president made a personal appeal to parents, friends, alumni, Walla Walla townspeople, business men and others interested in Whitman's progress. The student-faculty committee helped prepare a special folder to interest parents of current students. Appeals were mailed to other friends of the college. The Whitman College Alumni Association earmarked its loyalty fund for the building. Students and organized campus groups enthusiastically assisted by raising funds through benefit events and subscriptions. Contributions poured in from all these sources but most of the funds were in response to the president's personal appeal.

Construction of the building started last summer. It is to be a faced brick building of Colonial type, correspond-



FINANCING AND OPERATING A STUDENT CENTER

WINSLOW S. ANDERSON

President, Whitman College

ing to the architecture of other campus buildings, with a two story section 42 by 122 feet and a one story wing 40 by 54 feet. It will be fire-proof throughout, constructed of reinforced concrete and steel girders.

The center has been designed as such: to fulfill many needs and with all space in full use. For example, the large social room—often space only occasionally used—can double as a game room in addition to other space provided as a game room. The social room, 103 by 38 feet, will become truly the focal point of activities, for it can be divided by sliding doors to provide a dance floor at one end. The dance floor will accommodate more than 150 couples and a second floor committee room overlooking the social room can provide space for a dance orchestra. Restaurant facilities will be abbreviated to a fountain and lunch counter that can be used throughout the day; the book room and the mail room will be linked for economy in space and in student help required.

The center will release office and locker space in other buildings and will provide a campus home for many day and resident students living some distance from the college area.

Just as the Whitman center is being constructed without the use of the college's endowment funds, so it is to

be operated without the use of those funds. It will be a self sustaining project with costs of operation financed in part by a nominal membership fee paid by all students, by profits from the fountain, the lunch counter and the sale of new and used textbooks and by rental charges to groups using the dance floor.

Charges will be made attractive because the center is not to be a profit making venture and these charges and sales profits will cover only the overhead expense of operation. No rent will be asked for office space provided the several organizations and activities, including the Associated Students, the alumni association, the college yearbook, the literary magazine and the newspaper. These groups, however, as far as possible, will furnish their own offices.

There is a third way in which the center will not be dependent upon the college: A full time manager will be employed to run the building and its facilities. His management will follow policies determined by an advisory committee composed of students and faculty members, for plans are to have the center operated as a cooperative venture, like a university club, with the students having a prominent part in its management. In this way, the students will receive valuable training.

ROBERT G. RASHID

Acting Director of Public Relations
Ripon College

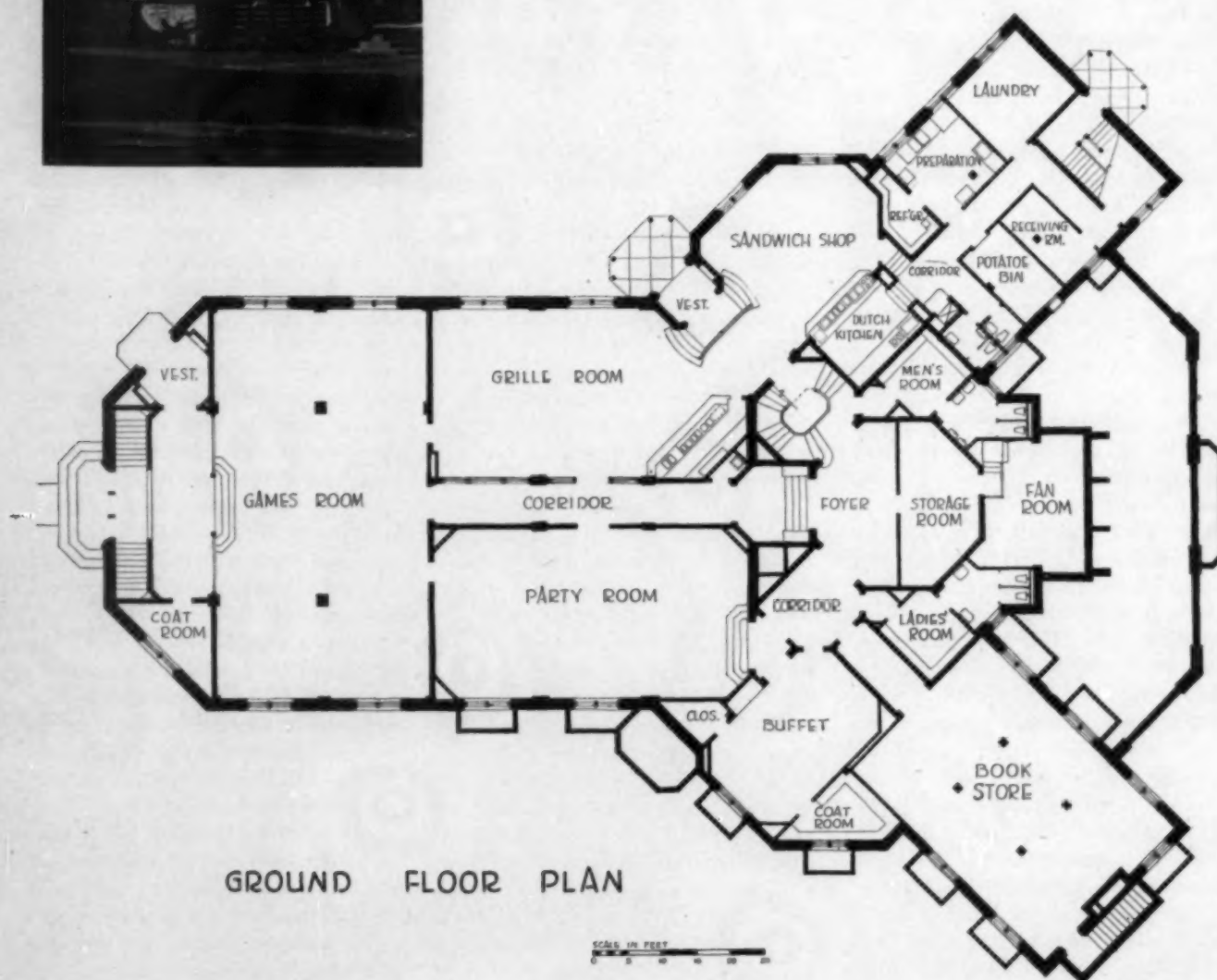


THE FRANK J. HARWOOD STUDENT Union at Ripon College in two years has become the center of student activities in this small nondenominational liberal arts institution in Wisconsin.

In his dedicatory remarks on June 17, 1944, Dr. Clark G. Kuebler, Ripon's president, pointed out that a liberal education "embraces much more than formal classroom instruction. To be real it must reach out to include the student's whole being, subtly modifying his tastes, ennobling his ideals and nurturing his soul. It must teach him to play wisely as well as to think soundly. Unobtrusively, yet surely, it must train him to live happily and effectively both as an individual and as a member of society."

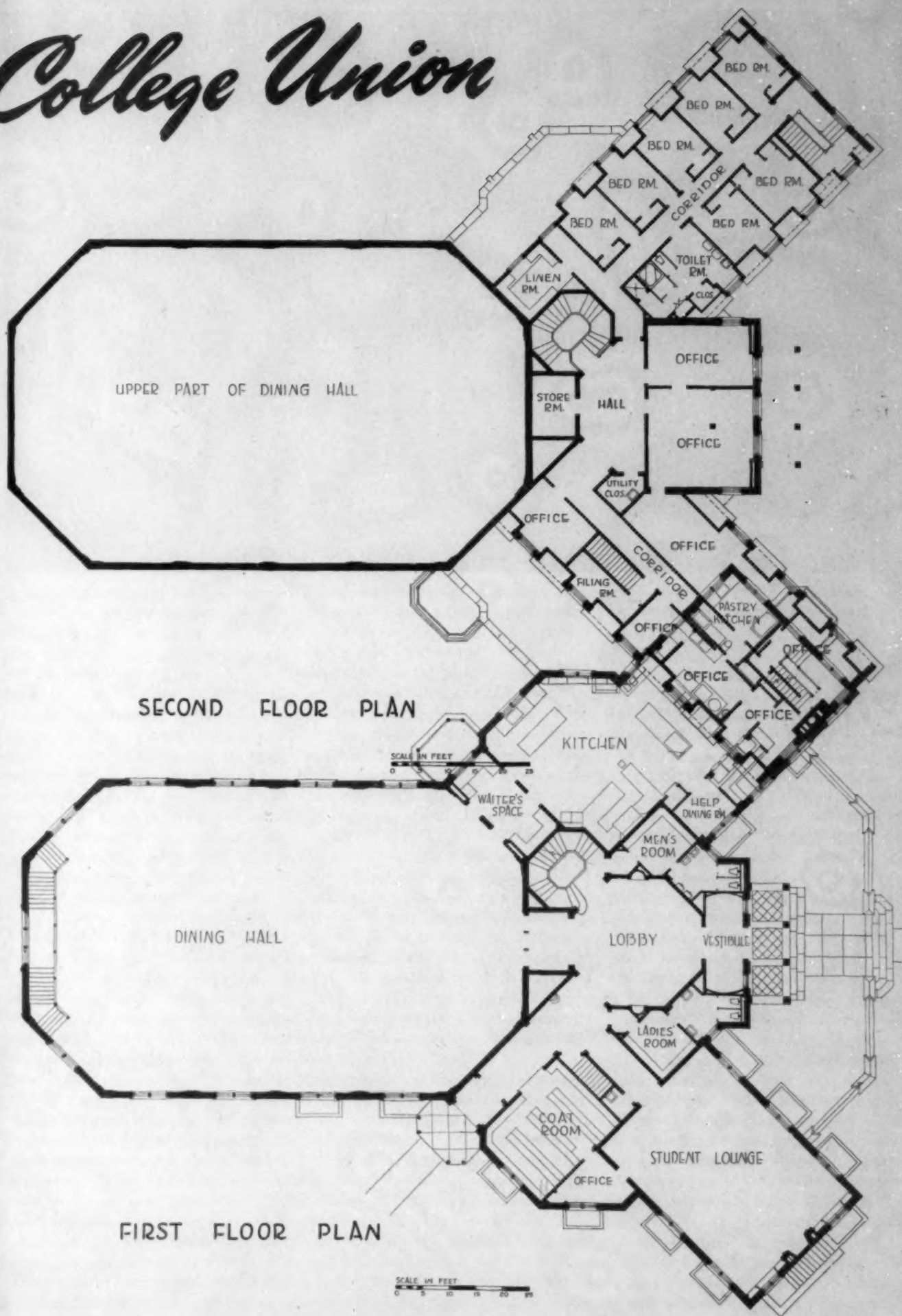
Carried on the college books at a cost of \$174,432, the beautiful structure of Lannon stone, a native Wisconsin mineral, is situated on the southwest corner of the college campus and faces a wide sweep of sloping grass covered lawn. Entrance to the structure leads directly into a large foyer containing murals of various aspects of life on the Ripon campus. The main dining room, seating 450 students, is entered directly from the foyer. A spacious lounge for students is on the first floor, too, as is the kitchen just off the dining room.

Above the kitchen on the second floor are rooms for the kitchen staff. Other second floor rooms include the union manager's, the dining room



GROUND FLOOR PLAN

College Union





HANDSOME EXTERIOR of Ripon's new college union is fast becoming a landmark on that Wisconsin campus. Unlike most unions, this busy center operates without a direct union fee. Off campus groups pay a rental.

dietitian's, the college admissions department, public relations offices and college newspaper and yearbook offices as well as an office for the alumni association.

Downstairs from the foyer is a grill room which has also an outside entrance from the street at the rear of the building. In addition, there are the college operated bookstore and a game room containing pool, billiard and table tennis tables. One other large room on this floor is available for student dances and parties. Below the kitchen are a vegetable room and miscellaneous rooms for storage and refrigeration.

Architects for the new college union building were Auler, Jensen and Brown of Oshkosh, Wis.

Originally the building financing was arranged to include depreciation on a basis of 1 per cent of the original cost per year but this amount was found inadequate. Present plans call for an increase to 3 per cent per annum so that the endowment funds can be reimbursed.

The audit sheet for Aug. 31, 1944, shows the union's net income for that year as \$14,635.04. This amount, according to the college business man-

ager, is taken directly into the general funds account. The new auditors for the year ending Aug. 31, 1945, did not set up a separate operating account for the union but absorbed the entire operation in the current income and expense fund. On this basis the net income for the union was approximately \$11,000.

The building does not contain dormitory rooms for students but 10 rooms and a central bath are available to house the kitchen staff. This arrangement has been found very satisfactory during the winters, especially since the staff normally works long hours. Having these employees housed in the same building is extremely convenient, both for dining room operation and for the employees. No charge is made to the kitchen employees for their rooms as use of these facilities is part of their remuneration.

A total of \$8500 is charged in rent to the previously mentioned occupants of the building, apportioned according to the amount of space the various offices are allotted. The net profits from the bookstore and the grill are credited but not the net income from the dining room because there is a rental charge against that operation.

Ripon College has a liberal general fee of \$25 a semester. These funds are not allocated to activities but any balance of these funds is credited to the union as a union fee. In contrast to the common practice elsewhere, the college does not have a direct union fee. No charge is made to students for the use of the building for their dances, parties and other social functions but some revenue is derived through rental of the union facilities to off campus organizations.

Since its construction, the Frank J. Harwood Union has been an active campus center and there are only a few changes we would make in its design were we to build another. One criticism of our present layout has been that the lobby is too small to handle the large crowds entering and leaving the large ballroom. Too, the elimination of public traffic through the game area would improve that section of our union. A few more small meeting rooms would have been to our advantage also, as would provision of a central information desk or control point. All in all, however, we have found the building most useful and a definite contribution to the students' enjoyment of college life.

THIS BUILDING FOR FOOD ONLY

LYNN W. FRY

Supervisor of Plant Extension
University of Michigan

IN THE FALL OF 1946, THE UNIVERSITY of Michigan started construction of its new food service building. Plans had been in preparation for a year under the direction of a committee composed of key personnel of the university and an expert in food service engineering.

The purpose of the building is to provide adequate refrigeration and dry storage, together with certain processing departments to feed 10,000 people, or 30,000 meals, a day. The structure will fulfill requirements for all the kitchen facilities in the university, including the 1000 bed University Hospital, Michigan Union, Women's League, health service building and men's and women's dormitories.

The building is of reinforced concrete construction with brick and stone exterior. Interior partitions are glazed building tile. In all the food storage areas, the floors are quarry tile laid in acidproof cement. The floor covering in the office section of the building is asphalt tile. Acoustic treatment is used throughout this section.

Heating is from the university's central heating plant. Small areas of the building are provided with convector radiators and the large areas are heated by unit heaters.

TWO ELEVATORS, TWO CONVEYORS

Ventilation is provided in all refrigerators and air conditioning, in the butcher shop and office section. Fluorescent lighting is used in all sections of the building except the butcher shop and refrigerators. Provisions are made in all food storage areas for the installation of germicidal lamps.

Communication systems consist of telephones, intercommunicating talking equipment and tubes for sending orders.

Two elevators are provided, one at each end of the building, and a system of incline and vertical conveyors is incorporated to convey food from the loading dock to its storage place.

The refrigerators are cooled by means of overhead coils, freon gas being used. They are served by small units which now seem to be accepted by refrigeration engineers in preference to one or two large units. These machines are connected in manifold in some instances so that the machines automatically start in a group when large loads are placed on them but so that only one or more machines operate for normal loads.

The processing departments consist of butcher shop, bakery and ice cream manufacturing.

SIX REFRIGERATORS FOR MEAT

The butcher shop is located in the center of a group of six refrigerators, which take care of meat, fish and poultry. Each refrigerator has a door opening directly into the butcher shop. Being air conditioned, the shop acts as a vestibule to each refrigerator.

The refrigerators can hold approximately 15,000 pounds of pork, 40,000 pounds of beef, 15,000 pounds of smoked meat, 15,000 pounds of poultry, 2000 pounds of fish and 12,000 pounds of cut meat. The butcher shop is to be completely equipped with motor driven grinders, saws and choppers.

Adjacent to the meat department is a hardening or freezing refrigerator to be used for freezing meats and other foods and hardening ice cream.

The bakery is located on the first floor. This shop will be mechanized as far as possible and will be equipped with machines for making bread, rolls and other bread dough items; with pastry making units, such as pie machines; with cooky droppers, production units, fryers, kettles and steamers.

All flour will be stored in a refrigerator on the floor above the bake shop and will come by a chute to the flour machines.

All the make-up of the bakery is in one end. The material will then progress to the formers and on to the ovens. From the ovens it will be taken

into the cutting, wrapping and cooling rooms to be stored for delivery. The bakery will produce daily approximately 2000 loaves of bread, 1000 dozen rolls and 8000 servings of assorted pastries.

The ice cream manufacturing department will manufacture 80,000 gallons of ice cream a year.

On the second floor, refrigerators have been provided for the storage of three carloads of flour, 75,000 pounds of meat, 40,000 pounds of dried fruit and 75,000 pounds of frozen foods. Two frozen food refrigerators are available. Also three storage rooms to handle 30 tons of sugar are provided on this floor.

In the basement is the large grocery make-up room. Here orders will be made up in bins or on trucks, ready to be delivered to the different kitchens. When the orders are completed they will be delivered by truck from the delivery entrance.

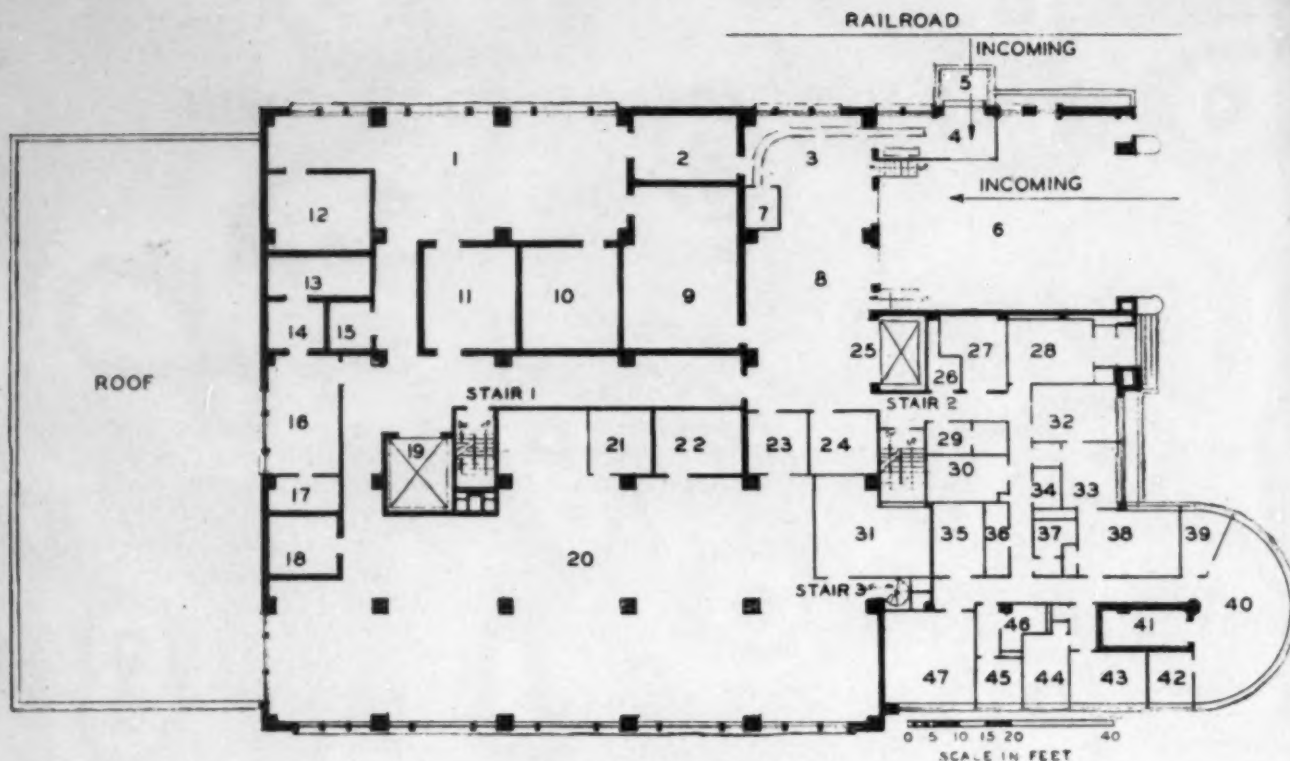
In the basement refrigerated areas have been planned for the storage of 6000 pounds of cheese, 700 bushels of fresh fruit, 700 bushels of fresh vegetables, 300 cases of eggs, 40,000 pounds of cereals, 8000 pounds of potatoes (two refrigerators are provided for potatoes so that when one is emptied it can be thoroughly cleaned before refilling) and 3000 bushels of apples (in two refrigerators).

BUILDING TO COST A MILLION

Other important rooms in the basement are the garbage refrigerator, pan washing room, lard rendering room and smokehouse.

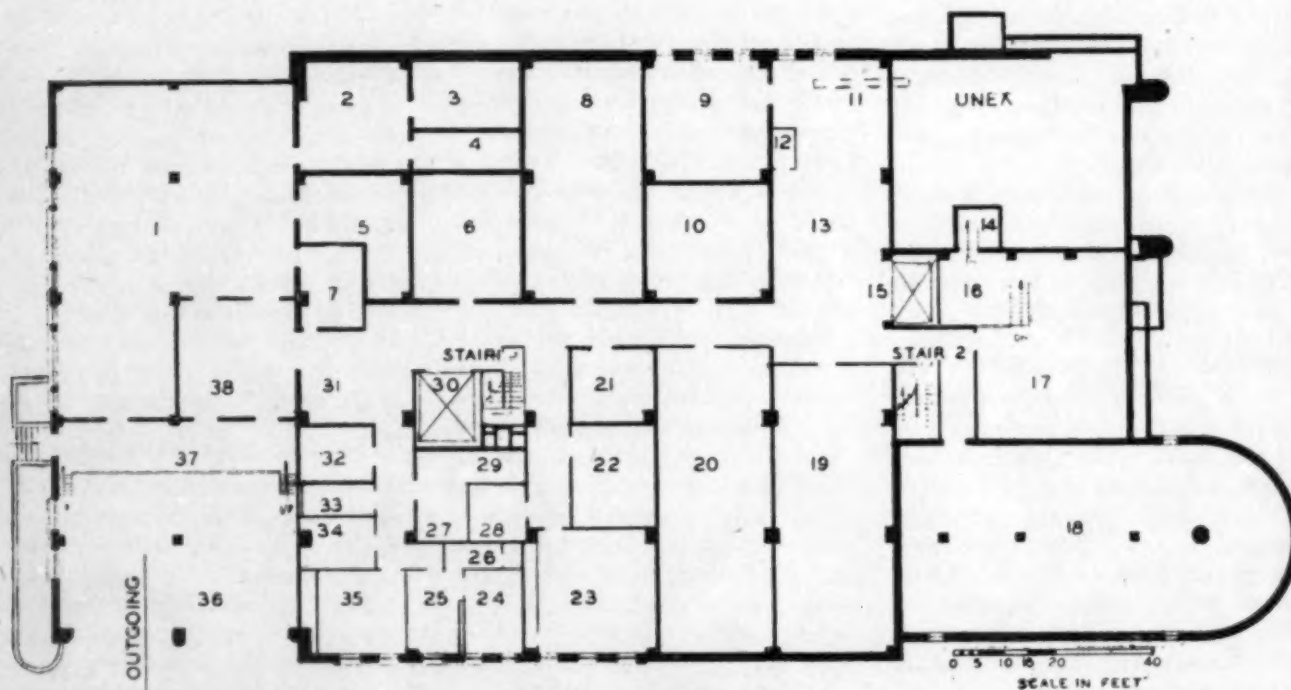
Offices are provided on the first floor for purchasing agents, dietitians and the order and accounting departments. A demonstration laboratory is located near the offices and provides a space for demonstrations for dietitians and cooks and for the testing of food.

The building is costing approximately \$1,000,000 and will be ready for use this fall. Floor plans and a flow-chart appear on pages 16 and 17.



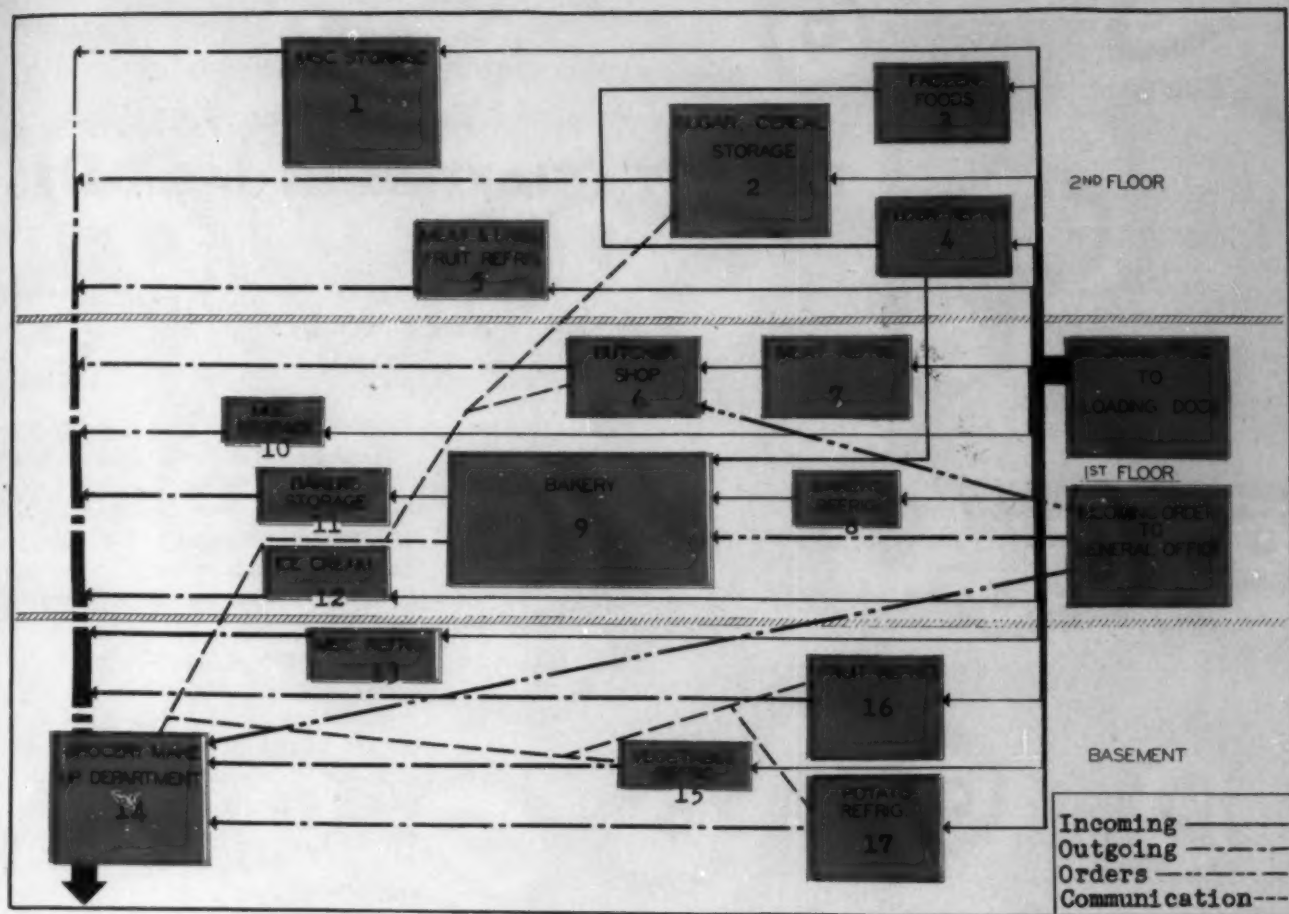
FIRST FLOOR PLAN

- | | | | | | |
|----------------------|----------------------|----------------------|----------------------|----------------------|-------------------------|
| 1. Butcher shop | 9. Beef ref. | 17. Storeroom | 25. Elevator No. 2 | 33. Secretary | 41. Vault |
| 2. Pork ref. | 10. Smoked meat ref. | 18. Baked goods | 26. Janitor closet | 34. Janitor closet | 42. Business machine |
| 3. Inclined conveyor | 11. Cut meat ref. | 19. Elevator No. 1 | 27. Male help toilet | 35. Sample room | 43. Dietitian |
| 4. Receiving area | 12. Poultry ref. | 20. Bakery | 28. Waiting room | 36. Coats | 44. Assistant dietitian |
| 5. Loading dock | 13. Hardening room | 21. Storeroom | 29. Ladies' toilet | 37. Men's toilet | 45. Ladies' rest rm. |
| 6. Truck space | 14. Vestibule | 22. Baker's ref. | 30. Refile room | 38. Purchasing agent | 46. Toilet |
| 7. Vertical conveyor | 15. Fish ref. | 23. Baker's office | 31. Storage | 39. Ass't manager | 47. Conference rm. |
| 8. Receiving dock | 16. Ice cream room | 24. Receiving office | 32. Manager | 40. General office | |



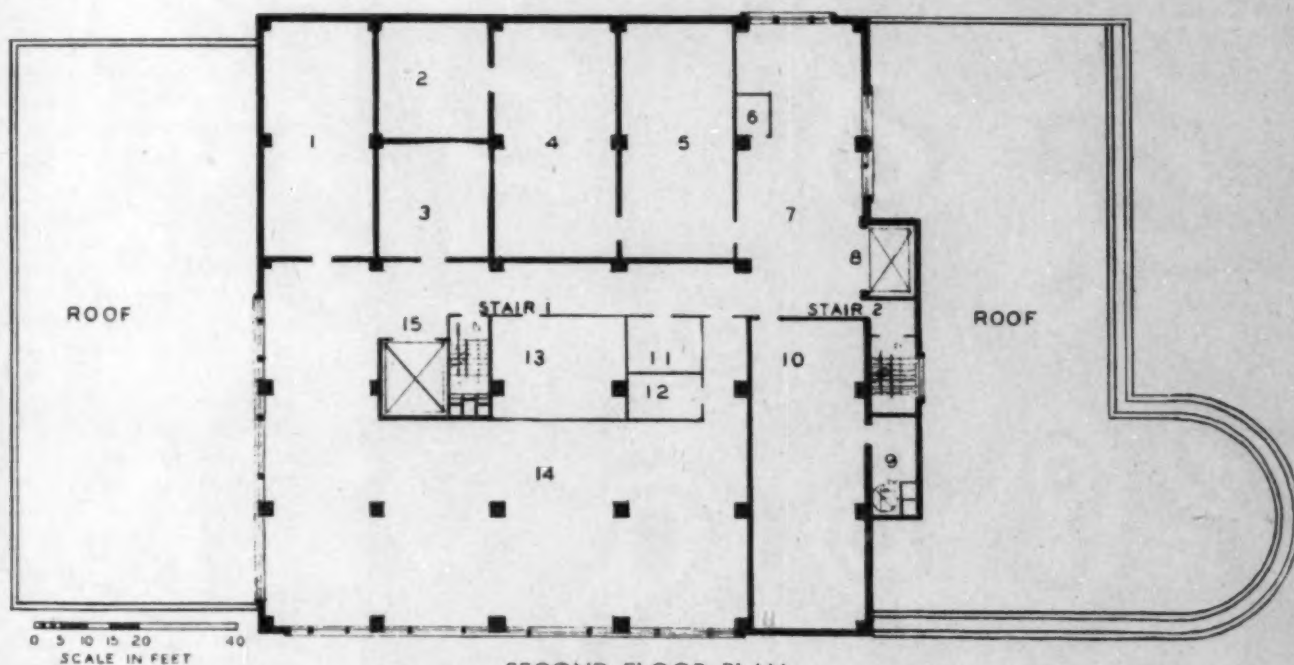
BASEMENT FLOOR PLAN

- | | | | |
|------------------------|-----------------------|----------------------------|----------------------|
| 1. Grocery makeup room | 10. Apple ref. | 20. Potato, veg. ref. | 20. Elevator No. 1 |
| 2. Grocery ref. | 11. Inclined conveyor | 21. Cereal ref. | 31. Hand truck space |
| 3. Corned beef ref. | 12. Vertical conveyor | 22. Egg ref. | 32. Garbage ref. |
| 4. Cheese ref. | 13. Receiving area | 23. Ref. equip. rm. | 33. Janitor closet |
| 5. Fresh fruit ref. | 14. Tunnel pit | 24. Toilet | 34. Garbage cans |
| 6. Fresh veg. ref. | 15. Elevator No. 2 | 25. Locker room | 35. Pan wash. |
| 7. Office ref. | 16. Mech. equip. rm. | 26. Shower room | 36. Truck space |
| 8. Apple ref. | 17. Mech. equip. rm. | 27. Firing and refuse room | 37. Loading dock |
| 9. Ref. equip. rm. | 18. Storage | 28. Lard rendering | 38. Outgoing lobby |
| | 19. Potato, veg. ref. | 29. Incinerator | |



FLOOR SPACES AND CAPACITIES

1. 2922 sq. ft.	5. 1460 sq. ft., 115,000 lbs.	9. 5340 sq. ft.	13. 990 sq. ft., 40,000 lbs.
2. 2926 sq. ft.	6. 1400 sq. ft.	10. 96 sq. ft.	14. 2610 sq. ft.
3. 1560 sq. ft.	7. 1760 sq. ft., 87,000 lbs.	11. 502 sq. ft.	15. 430 sq. ft., 603 bu.
4. 1320 sq. ft., 150,000 lbs.	8. 190 sq. ft.	12. 415 sq. ft., 17,000 lbs.	16. 2120 sq. ft., 3700 bu.
			17. 2250 sq. ft., 8000 bu.



SECOND FLOOR PLAN

- | | | |
|---------------------|----------------------|---------------------------|
| 1. Spare ref. | 6. Vertical conveyor | 11. Brown sugar ref. |
| 2. Frozen food ref. | 7. Receiving area | 12. Conf. sugar ref. |
| 3. Dried fruit ref. | 8. Vestibule | 13. Granulated sugar ref. |
| 4. Frozen food ref. | 9. Vestibule | 14. Storage area |
| 5. Meat ref. | 10. Flour ref. | 15. Elevator No. 1 |



FACULTY QUARTERS IN 145 DAYS

COL. ALLEN R. ELLIOTT

Executive Officer
Culver Military Academy



THE POLICY OF THE CULVER EDUCATIONAL Foundation has been to furnish faculty members, insofar as possible, with comfortable and conveniently located houses or apartments at the lowest possible rental figure.

In the spring of 1946 it became evident to the administrative authorities that when school opened in September six faculty families would be without quarters unless something was done and done quickly. Former faculty members who had been in service were returning and no houses were available near the campus or in the village nearby. To meet this problem plans were made to convert two large dwellings near the campus into duplex apartments and to build one apartment building that would house four families in ample quarters.

The architect was given the problem of designing a four family apartment building which could be erected as economically as possible, would



EXTERIOR appearance of Culver's new faculty quarters has the aspect of a residence rather than of an apartment building as shown in small picture at right. Each kitchen is equipped with an electric range and a refrigerator and, though small, is well designed for convenience and storage as picture at top of page indicates. A typical bedroom is shown in the center picture. Room at left is a combination living and dining room.

When Culver Military Academy was faced with the problem of finding housing for six families, something had to be done quickly . . . it was

give maximum use of floor space and which, at the same time, would be attractive in both exterior and interior appearance. The location chosen was on a high plot of ground overlooking Lake Maxinkuckee and the academy golf course. The contractor's main problem, outside of finding materials, was to have the building ready for occupancy in 118 days.

Both of these problems were admirably met. Working on the general instructions as stated, the architect designed a building that provides four apartments and has the exterior appearance of a large residence rather than that of an apartment building. Occupants moved in 145 days after excavation was started.

There are two apartments on each floor, each with a front and rear entrance opening into common halls. Each apartment consists of a combination living room and dining room, kitchen, three bedrooms, with ample closet space, and bath. Each family is provided with a storage room in the basement where there is also a common laundry room equipped with tubs and outlets for home laundry machines.

All of this is in a building 27 by 88 feet overall.

Wall construction is of 4 inch concrete masonry unit block and brick with an overall thickness of 9 inches. There is an air space of approximately 1 inch between the block and brick, which are tied together with metal wall ties and wall bonds. Since the building has been found easy to heat, experience during three winter months has indicated that such a wall has good insulating value.

On exterior walls, plaster was applied directly to the blocks after they had been waterproofed with plaster bond. Interior partitions were lathed with standard gypsum board. Plaster is of sand finish.

Floors are of oak, finished by a penetrating seal. Bath, kitchen and common hall floors are greaseproof asphalt tile.

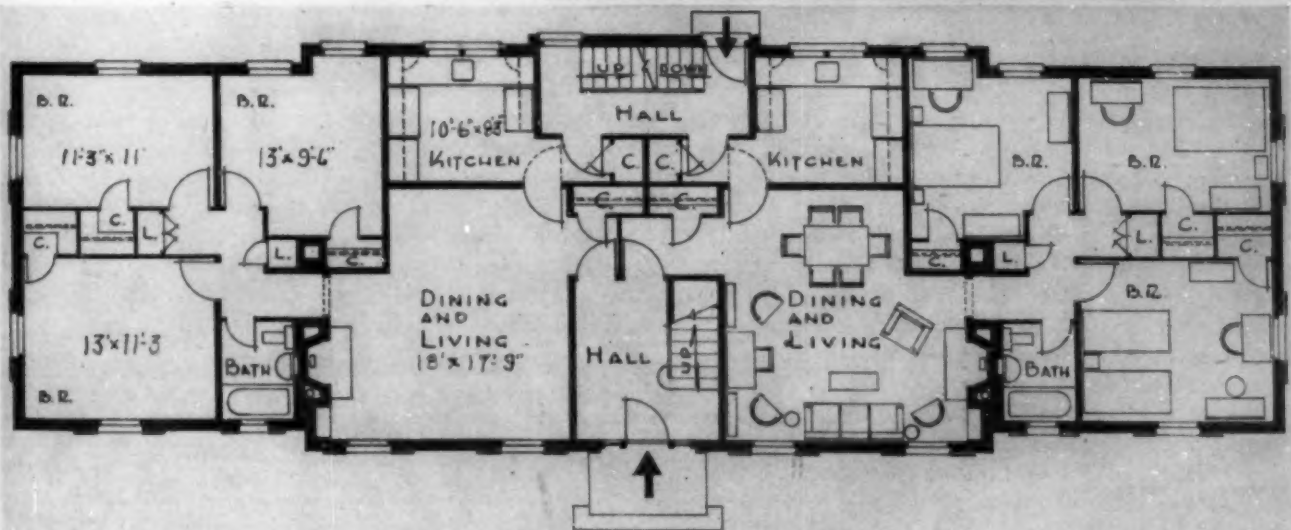
Largely because of the time element, walls were finished with one coat of paint of the oil and resin emulsion type, one coat giving ample coverage. Each family was offered the choice of any standard tint to provide variety in the appearance of the four apartments.

Heating consists of forced circulating hot water with convector type of radiators. An outside thermostatic control regulates a coal stoker to outside temperatures. The attic floor is insulated with 4 inches of rock wool.

Kitchens are small but designed for maximum convenience and storage space. Each kitchen is equipped with an electric range and a refrigerator.

Best features of the building are (1) comparative low costs (considering present standards), (2) utilization of space and (3) attractiveness of both exterior and interior.

The building complete (excluding land and architect's fees) cost \$37,049.12, or \$9,262.28 an apartment. Costs broken down were as follows: excavation and general construction, \$30,549.12; plumbing, \$3000; heating, \$2675 (including stoker); electrical system, \$825. This figures a total of 56 cents a cubic foot. Gerald Brubaker of Elkhart, Ind., is the architect.



FIRST FLOOR PLAN

Periodically, College and University Business asks a selected group of readers about a specific operating technic or method and publishes the findings for the guidance of readers in measuring their own methods.

WHAT ABOUT NONACADEMIC WAGES?

Interpreted by
ROBERT F. MOORE

Director of Personnel, Columbia University

THE SURVEY OF NONACADEMIC SALARIES and wages conducted during February by this magazine brought to light no major surprises. In general, the 273 colleges and universities that responded to the questionnaire have been well aware of the economic pressure upon their employes and have done something about it. As a matter of fact, college and university employes are enjoying "wages, hours and working conditions" quite comparable to the communities in which they work. Not the least of these conditions are security and reality of the annual wage typical of college and university employment.

The editors are to be complimented upon the useful undertaking of this survey. They have made a fine start and it is to be hoped that it will become an annual feature.

Before embarking upon interpretation of this material, I should like to point out to the readers and to the editors for their future guidance that the data received are not completely reliable. This is due to the wide variance from campus to campus in the duties involved in the job categories used in the survey. It would be useful in the future to include a three or four line job description under each category so that we should all be talking about the same thing when we answer the questionnaire.

Another suggestion is that the enrollment of the institution rather than the population of the area in which it is located would be a more significant basis for comparison.

The questionnaire asked, "How do rates a year and two years ago compare with present rate schedules?"

With few exceptions the 273 institutions that answered had given salary and wage increases during the last two years. While 34 per cent of the college employers consider these increases as temporary cost-of-living adjustments, 64 per cent regard increases as a permanent addition to the salary structure. From comments by those using the cost-of-living formula, there arises a strong suspicion that they, too, have added a permanent feature!

Wage and salary increases during the period surveyed vary from 5 to 75 per cent with an average increase of 22 per cent. This is an interesting coincidence because during the same period the Bureau of Labor Statistics cost-of-living index rose 22.4 per cent. For two years, at least, the colleges kept pace with the cost of living. During the past year, however, the BLS index outran increases given by the colleges. The index increased 18 per cent while college pay averaged an advance of 14 per cent.

The survey does not indicate what increases were made by the colleges during wage stabilization, or since 1941. During wage stabilization an increase of 15 per cent was allowable under the Little Steel Formula.

Did the colleges take advantage of this formula? If not, their average in-

crease of 22 per cent during the last two years leaves them far short of the 50 per cent cost-of-living rise. If they have applied the Little Steel Formula of 15 per cent, added to the 22 per cent of the last two years, then they need only to add another 13 per cent to bring pay and cost of living into adjustment. The estimate of 11 per cent for 1947 increases would come close to accomplishing that objective, provided the cost of living does not move much higher.

College administrators should contemplate what has happened to the purchasing dollar of their employes between 1939 when the index was at 100 and today when it is over 150. Our dollar has shrunk to 65 cents. A salary of \$40 for a secretary today seems high in comparison with \$25 before the war, yet that secretary being paid \$40 is receiving a *real* salary of only \$26.

Before passing on to another phase of the questionnaire I must mention one danger spot that showed up in several responses to the wage increase question. In many cases increases larger by from 5 to 30 per cent had been granted to the maintenance mechanics and service groups than to the so-called white collar group. Could this have been brought about by labor

TABLE 1—INCREASE TO FEBRUARY 1947

	SINCE 1941	SINCE JAN. '45	SINCE JAN. '46	INCREASES FORECAST FOR '47
College pay.....	?	22%	14%	11%*
Cost of living.....	50%	22.4%	18%	?

*Based on answers from approximately half of group surveyed.

union pressure? Have the white collar workers been overlooked because they are not organized? I trust there is some other explanation.

The 24 job categories have been summarized and averaged for all colleges and ranked in table 2 according to the lowest and highest salaries paid. The range is also shown for each job. There is no significance to these data except as a matter of general interest. It would be dangerous to use the rates shown for each job as criteria against which to measure any individual college's rates. The figures have been drawn from too broad an area and have no common denominators in the form of job descriptions. The exceptionally low figures at the bottom of each range are no doubt explained by the use of part time or student workers. In some cases there may be perquisites such as board and room in addition to salary.

If the rates at the top of the range seem unusually high, the explanation will probably be found in the duties involved. For instance, a senior accountant at \$450 per month may very well be the business officer, and the dietitian paid \$400 monthly may have under her charge the entire dining hall service of a large university.

While the survey did not ask whether maintenance, room and board

were included as remuneration many respondents so noted. Particularly is this true for farm labor, food service employes and nurses. In a few institutions all employes receive board and room.

A few of the smaller institutions report that most of clerical and maintenance work is done by students either for pay or on a cooperative basis. A sectarian institution made reference to "services performed by the religious community conducting the college."

One college tells of a family-status pay plan that has been in effect for four years and has proved very satisfactory. Under this plan the basic rate is supplemented by 20 per cent for married status and 5 per cent for each dependent child.

The Pacific Coast area pays the highest average salaries in practically all job categories with the Rocky Mountain area next in line (see table 3). The Middle West, Middle Atlantic and New England areas are grouped together as the third best paying regions. The Southwest pays rates just slightly behind the third group, while in the South Central and Southeast the lowest pay is found. Insufficient returns from the Northwest discount the higher than average salaries which were reported from that area.

**Table 2—JOBS RANKED
ACCORDING TO AVERAGE
MONTHLY PAY**

CLASSIFICATION	NATIONAL AVERAGE	RANGE
Senior Acc't.....	\$240	\$75-\$450
Power House Eng... 204		96- 375
Electrician..... 203		110- 320
Dietitian..... 201		80-*400
Plumber..... 194		90- 323
Carpenter..... 190		96- 306
Top Secretarial.... 183		75- 328
Jr. Accountant..... 178		70- 332
Head Janitor..... 174		65- 350
Nurse..... 165		40-*320
Fireman..... 161		72- 243
Accounting Clerk... 159		75- 300
Storekeeper..... 159		70- 260
Lab. Technician... 155		75- 315
Cook..... 153		48-*320
Truck Driver..... 149		75- 210
Groundsman..... 141		60- 230
Watchman..... 140		55- 201
Skilled Office Per- sonnel (dict., bus. machines)..... 136		75- 200
Janitor..... 135		65- 225
Truck Driver Helper 125		50- 190
Farm Labor..... 122		50-*195
Typist..... 120		60- 175
Unskilled Kitchen Labor..... 99		40-*173

*Usually includes meals and/or room.

Table 3—AVERAGE MONTHLY SALARIES PAID IN VARIOUS GEOGRAPHICAL REGIONS

JOB CLASSIFICATION	NAT'L AV.	S. E.	NEW ENG.	MID- WEST	MID- ATL.	ROCKY MTS.	PACIFIC COAST	S. W.	S. C.	N. W.
Accounting Clerk.....	159	137	142	148	154	152	168	151	163	170
Junior Accountant.....	178	170	165	174	181	196	190	190	191	174
Senior Accountant.....	240	240	257	227	229	254	277	243	232	...
Typist-Clerk.....	120	113	114	118	123	119	145	128	120	121
Skilled Office Personnel.....	136	133	133	139	150	135	160	151	131	138
Top Secretarial.....	183	170	167	171	181	174	198	191	164	178
Groundsman.....	141	107	153	142	136	143	170	144	122	168
Watchman.....	140	125	149	141	132	153	176	147	125	142
Truck Driver.....	149	117	145	167	149	155	175	140	105	...
Truck Driver Helper.....	125	91	124	152	128	123	160	113	97	...
Carpenter.....	190	172	177	199	188	202	239	180	161	...
Electrician.....	203	187	182	210	194	232	251	199	172	...
Plumber.....	194	187	192	212	197	222	243	180	177	...
Janitor.....	135	97	147	143	129	145	164	131	97	143
Head Janitor.....	174	120	182	182	173	203	219	159	138	181
Power House Engineer.....	204	196	225	208	203	188	226	196	173	190
Fireman.....	161	136	162	169	158	160	210	113	126	160
Inventory Storekeeper.....	159	164	158	162	148	188	186	153	164	...
Unskilled Kitchen Labor.....	99	76	104	100	104	102	128	104	83	121
Cook.....	153	140	180	146	168	135	181	141	121	147
Dietitian.....	201	187	204	208	205	225	205	191	199	178
Farm Labor.....	122	82	140	137	128	101	91	...
Nurse.....	165	150	154	168	174	165	195	155	152	200
Laboratory Technician.....	155	137	178	173	178	151	169	142

Blanks left where there are insufficient reports to make an average valid.

Top salaries for individual categories are not restricted to large communities or big universities. For example, colleges in small communities pay generally as well as institutions in big urban sections for top secretarial personnel. On the other hand, the low salaries reported in small population communities are considerably lower than those reported in other population groups.

The most significant conclusion that may be drawn from this survey is that colleges and universities are faced with a serious budgetary problem because of rising costs of personnel. This situation calls for more skillful management, better salary and wage control and better supervision and utilization of manpower.

With high pay must come high efficiency. No longer can administrators afford to tolerate "living statues" or "retirement on the job." They must demand a fair return on their pay roll dollar.

University and college administrators should take inventory of their personnel policies and wage and salary procedures by asking these questions: *Have we an organization chart that shows the position and function of each employee?*

Is the position necessary?

Is the employee adequate for the position?

Is the salary consistent with comparable positions in the organization?

Is there an understudy for each major position?

Can duties be added or positions merged without sacrificing services or efficiency?

Do we have a sound salary and wage structure?

Based upon job evaluation:

Equal pay for equal work?

Defensible differentials between job levels?

Job descriptions and job analysis?

Rates comparable to similar jobs in the community?

Merit rating of employees?

Periodic salary review?

Can we decrease our pay roll costs?

By better scheduling?

By closer control of overtime?

By control of sick leave and absenteeism?

By better supervisors and improved supervision?

By decreasing turnover?

In other words, do we practice what we teach?

ALUMNI SECRETARY AND HIS JOB

JOSEPH F. MANAK Jr.

Executive Alumni Secretary, Western Reserve University

THE TIME HAS COME TO REALIZE that an alumni secretary does not have as his prime responsibility the keeping of routine records. His *raison d'être* today is threefold: (1) to sell the worth of the university to the community as a whole; (2) to help place as many of the school's graduates as possible in positions of trust in business; (3) to interest men of vision and wealth in the growth of the university and in its graduates.

Let's face the facts. Seventy-five per cent of graduates never return to the shaded lanes of old Siwash. Regardless of this fact, all have a soft spot in their hearts for alma mater and are proud of attendance there. About 25 per cent even help support it by annual contributions. More graduates, however, are pleased with the addition of a renowned teacher or scientist to the faculty rolls than with the signing of "Iron Mike" Duganow, that builder of character on the gridiron during losing seasons and the genius of the football field during victorious ones. It has even been whispered in the cloistered confines of alumni gatherings that a professor is worth more to alma mater than any triple threat quarterback—and not by the dangles of Phi Beta Kappa keys either.

The university today is a big business dedicated to a business-like purpose of turning out a product superior in quality (intellectually, morally, culturally) to that of its competitors—other universities.

Consider my own university for a moment—Western Reserve University of Cleveland. Although in size it ranks nineteenth in the nation, its net worth is more than \$27,000,000 (including physical plant and endowment) and its annual budget is in excess of \$4,500,000.

Into the new scheme of things the alumni secretary has his particular part: that of salesman, through the ranks of the alumni, to the general public. More especially it is the representation of the university to the business, the cultural and the social leaders of the community.

When the local chamber of commerce has a meeting, he should be

there. His attendance and close cooperation should be mandatory at all civic functions sponsored by the City Club or all shows arranged by the Advertising Club. Joint alumni meetings with prominent civic groups should be held as often as practical. For example: A speakers' bureau composed of university and alumni men and women should be available to the public at all times at no charge. It is imperative that newspapermen know him by sight, that business men have lunch with him and that local union leaders call him "Joe."

With regard to point No. 2, the file of alumni names and addresses should be cross indexed with a file of the names and addresses of every prominent business man or cultural leader in the community. Furthermore, if Johnny Alumn is a young executive with the firm of Elias Richchips, Inc., what better contact man could one have than Johnny, when old E. R. begins consideration of a research laboratory or a school of business to perpetuate his name?

A placement bureau for university graduates must be maintained in close association with the alumni secretary.

The cream of the student graduates should be enabled to find their way easily into the more reputable business firms. Moreover, efforts should be made to train the students to meet the prevailing business standard. For example, if the M & L Company is the biggest store in the community, embryo accountants should work on problems selected from the books of that company.

Finally, the alumni secretary should be a field representative of the university to the men of financial means. He should know them personally, know their interests and hobbies better than his own and always be available as a source of information to them as to what the university is planning in the way of art, business, research laboratories, libraries and the like.

The day of reunion craze and of homecoming hysteria is over. The day of service to the alumnus and the university has arrived. It is a better day.

FEDERAL FUNDS GO TO COLLEGE

ERNEST V. HOLLIS

Division of Higher Education
U. S. Office of Education

AT THE END OF 1946 THE FEDERAL government had contributed approximately \$1,000,000,000 to the capital expenditures that colleges and universities are making for facilities required to provide education for veterans and other students. This type of aid may reach \$2,000,000,000 before war surplus educational materials are exhausted. Moreover, federal agencies are now providing funds to help colleges meet the increased cost of operation resulting from the enrollment of veterans, a cost which by 1955 will exceed \$1,000,000,000. The \$3,000,000,000 in funds and facilities does not include assistance given to pre-collegiate schools.

The \$3,000,000,000 estimate, of course, is not from budget bureau or from general accounting office figures but it is more than the guess of an individual. It was arrived at from informal estimates made by responsible officials in federal agencies participating in higher education programs that directly or indirectly contribute to the education and training of veterans. When the aid was indirect these officials did not always know what part of a grant should be credited to veterans attending a college. There was uncertainty also as to the actual value of war surplus materials but such facilities were credited at either salvage value or fair cash value as determined by the War Assets Administration.

The remainder of this article is devoted to a series of sketches which provide information on the nature and amount of aid that has been and is being provided by several federal agencies to colleges for the benefit of veterans. Today one person in each 70 of our 140,000,000 population is enrolled in the 1700 colleges of the country and more than half are veterans. A million of them are now living and studying, in part, under the same roofs that sheltered them while they were in the armed services.

DIRECT ARMY-NAVY AID

The army spent in excess of \$15,000,000 for training facilities at 400 colleges and, through resale to them for nominal sums, contributed approximately \$11,000,000 worth of facilities that are now being used by veterans and other students. On more than 200 college campuses the navy spent \$12,000,000 for facilities which it disposed of to the institutions for approximately \$2,000,000—the actual figures on 148 V-12 units show a cost of \$5,600,000 and a resale to the colleges for a scant \$1,000,000.

At one small state university, to be more specific, for an indoctrination center the navy spent \$90,000 in renovating a permanent structure, built and equipped a temporary structure that doubled the cafeteria facilities of the university, added an officers' mess that is now used as a faculty dining room and erected another temporary structure that is now being used by the university as a warehouse. Altogether these facilities cost the government more than \$200,000 and were returned to the university for \$10,000. Of course all colleges did not fare so well.

Officials of colleges that had armed service training programs will now admit to friends "off the record" that in one way or another their institutions managed to "salvage" considerable net profit from operating armed service training programs. A pool of informed guesses places the aggregate of these "profits" at \$8,000,000. Much of it is now being used to provide education for veterans.

In determining or renegotiating wartime army and navy research contracts, it is estimated that universities acquired at nominal costs scientific equipment and supplies worth \$6,000,000. This indirect source of aid to veterans has been greatly augmented by current research contracts which the army and navy are making with colleges and universities. The army

research program has more than 400 contracts in force in 88 colleges. They average two years in length and call for an expenditure of \$26,000,000. For similar purposes, the navy has in force in 81 institutions 365 research contracts, which amount to \$15,500,000.

Colleges are receiving also valuable indirect aid to veterans' education from army and navy R.O.T.C. The army R.O.T.C. annual budget for 137 four year college units and 88 junior units is \$24,500,000. The navy has 52 R.O.T.C. units and an annual budget of \$19,000,000. Veterans benefit from the two programs to the extent of perhaps \$7,000,000.

Both the army and navy provide critically needed facilities for veterans through permitting colleges to use establishments which are in excess of their present needs but which they do not expect to declare surplus for W.A.A. disposal. Frequently a college may ask to use only a section of a military post. If the contribution of all such facilities is estimated at lease value, and it is presumed that the land, buildings and equipment will be used throughout the educational emergency, the amount is certain to be in excess of \$8,000,000.

The army and navy are authorized to donate certain categories of equipment to educational institutions when supplies are in excess of their needs. In order to obtain a broad and equitable distribution, these donations are made through a state educational agency for surplus property in keeping with a plan devised and facilitated by representatives of the U. S. commissioner of education. Through this program, which is open to all schools and which is not limited to needs occasioned by providing education for veterans, colleges have received educational facilities that, by the fair value price standards of W.A.A., at the end of 1946 amounted to \$36,000,-

000. It is expected that \$100,000,000 worth of facilities will be donated to colleges through this channel in 1947.

MISCELLANEOUS FEDERAL AID

More veterans are enrolled in land grant colleges than in any other type of college and benefit from federal funds appropriated to these colleges. In addition to the land grants to each state, Alaska, Hawaii and Puerto Rico, the Congress appropriates to these colleges for unrestricted endowment and current support more than \$5,000,000 each year.

Congress provides also more than \$7,000,000 a year for experiment station work and \$23,000,000 a year for extension work. Perhaps \$7,000,000 of the \$35,000,000 can be credited as being used, indirectly but essentially, for educating veterans.

The land grant colleges and a few other colleges also receive \$2,000,000 for training teachers in vocational agriculture, home economics, trades and industries and distributive occupations. Perhaps half of the sum is used to educate veterans who are returning to or entering teaching in the vocational fields named.

Most of the \$3,000,000 worth of equipment purchased with federal funds for colleges participating in the Engineering, Science, Management War Training Program administered by the U. S. Office of Education for training war workers is still in use and is contributing to the education of veterans. They are beneficiaries also of approximately \$5,000,000 of the \$13,000,000 appropriated annually by the Congress for the general educational purposes of the Office of Indian Affairs, the Office of Vocational Rehabilitation, the District of Columbia and Howard University.

V.A. AID TO COLLEGES

Through payments for tuition or other forms of instructional costs, the Veterans Administration is contributing more cash to college budgets than all other federal agencies combined. For the fiscal year of 1946 the Division of Education and Vocational Rehabilitation disbursed \$401,670,000 to and for veterans attending college. This sum was distributed as follows: subsistence payments to veterans \$356,000,000; tuition \$33,200,000; equipment and supplies \$6,300,000; counseling activities \$6,170,000. These figures do not include the cost of administering the program. From the

STATUS OF APPROVED PROJECTS ON FEB. 28, 1947

F. W. A. Div. and State	Total		Construction and Equipment			Equipment Only	
	No.	Amount	No.	Amount	Sq. Ft. Floor Space	No.	Amount
U. S.	1,061	\$67,303,677	732	\$66,781,207	12,776,314	329	\$522,470
Div. 1	128	10,170,470	70	9,923,220	1,621,239	58	247,250
Conn.	8	754,800	5	738,300	82,570	3	16,500
Me.	6	536,000	5	535,000	66,536	1	1,000
Mass.	19	2,273,000	11	2,246,100	497,486	8	27,200
N. H.	7	395,500	4	380,000	37,880	3	15,500
N. J.	17	1,528,400	14	1,522,900	194,274	3	5,500
N. Y.	60	3,794,850	23	3,620,800	609,562	37	174,050
R. I.	3	334,700	3	334,700	42,627	—	—
Vt.	8	552,920	5	545,420	90,304	3	7,500
Div. 2	152	11,794,900	109	11,787,700	1,666,691	43	7,200
Del.	3	209,000	3	209,000	26,560	—	—
D. C.	8	965,300	6	965,100	171,900	2	200
Md.	12	1,155,300	9	1,155,000	159,000	3	300
Ohio	39	3,711,200	28	3,710,100	481,900	11	1,100
Pa.	58	3,792,900	38	3,792,000	505,881	20	4,900
Va.	19	921,000	14	920,500	178,250	5	500
W. Va.	13	1,036,200	11	1,036,000	143,200	2	200
Div. 3	163	9,428,530	126	9,406,030	1,749,852	37	22,500
Ala.	22	1,432,700	19	1,431,200	231,900	3	1,500
Fla.	12	1,333,600	7	1,331,100	248,972	5	2,500
Ga.	38	1,837,030	30	1,831,530	331,642	8	5,500
Miss.	22	1,430,100	20	1,429,100	227,472	2	1,000
N. C.	23	1,071,900	17	1,068,900	356,583	6	3,000
S. C.	13	860,300	10	858,800	139,013	3	1,500
Tenn.	33	1,462,900	23	1,455,400	214,270	10	7,500
Div. 4	152	11,441,610	72	11,335,440	1,551,693	80	106,170
Ill.	53	2,732,780	26	2,686,830	327,634	27	45,900
Ind.	28	2,476,250	13	2,459,000	384,295	15	17,250
Ky.	14	1,314,170	7	1,307,350	178,220	7	6,820
Mich.	25	3,073,110	12	3,055,610	399,040	13	17,500
Wis.	32	1,845,300	14	1,826,600	262,504	18	18,700
Div. 5	96	6,763,450	70	6,755,750	1,332,050	26	7,700
Iowa	22	1,313,650	14	1,308,350	327,300	8	5,300
Kan.	18	1,170,400	15	1,170,000	205,900	3	400
Minn.	16	1,791,200	10	1,790,100	342,300	6	1,100
Mo.	22	1,422,600	18	1,422,200	269,150	4	400
Neb.	8	661,300	5	661,000	106,500	3	300
N. D.	3	140,200	1	140,000	24,800	2	200
S. D.	7	264,100	7	264,100	56,100	—	—
Div. 6	134	7,816,152	122	7,800,452	2,304,010	12	15,700
Ark.	20	1,059,380	17	1,048,880	283,522	3	10,500
La.	21	1,172,810	19	1,171,810	310,977	2	1,000
Okla.	21	1,351,400	21	1,351,400	380,640	—	—
Tex.	772	4,232,562	65	4,226,362	1,328,871	7	4,200
Div. 7	124	5,610,890	83	5,570,140	1,364,560	41	40,750
Ariz.	13	393,510	10	392,110	70,240	3	1,400
Calif.	108	5,133,355	70	5,094,005	1,280,240	38	39,350
T. H.	1	25,950	1	25,950	4,000	—	—
Nev.	2	58,075	2	58,075	10,080	—	—
Div. 8	76	2,289,475	52	2,277,475	583,119	24	12,000
Alas.	1	500	—	—	—	1	500
Ida.	11	288,700	8	287,200	55,000	3	1,500
Mont.	12	168,600	6	165,600	31,000	6	3,000
Ore.	23	832,875	15	828,875	180,087	8	4,000
Wash.	29	998,800	23	995,800	317,032	6	3,000
Div. 9	30	1,845,100	26	1,843,000	589,900	4	2,100
Colo.	14	866,600	11	865,000	203,500	3	1,600
N. Mex.	6	406,000	6	406,000	98,700	—	—
Utah	8	479,000	8	479,000	252,500	—	—
Wyo.	2	93,500	1	93,000	35,200	1	500
P. R.	6	143,100	2	82,000	13,200	4	61,100

enactment of Public Law 346 and Public Law 16 to the end of 1946 this division had disbursed \$1,547,000,000 for the education of veterans in colleges, schools and on-the-job training.

The Division of Education and Vocational Rehabilitation of the Veterans Administration at the end of January 1947 was providing education and training to approximately

2,400,000 veterans. Of this total 1,100,000 were enrolled in institutions of higher education, 600,000 in precollegiate educational institutions and 700,000 in on-the-job and related training programs.

COLLEGE AID FROM W.A.A.

As the chief disposal agency for war surplus property, the War Assets Administration has provided assistance to colleges both directly and through a number of subsidiary disposal agencies. When W.A.A. became convinced that the disposal of surplus educational property is a complex professional task, it financed and authorized the U. S. commissioner of education to administer a surplus property utilization unit to act as its agent. This unit serves individual schools and colleges through a state educational agency for surplus property.

Surplus property was sold to educational institutions at a 40 per cent discount from the value placed upon it by W.A.A. More recently, discounts have been increased so that many categories of equipment are now available to schools and colleges at 5 per cent of W.A.A. prices. Colleges are estimated to have received through the discount channel personal property worth \$45,000,000 more than they paid for it.

New colleges have been created and now operate at former military and industrial establishments made available by W.A.A. For example, the Associated Colleges of Upper New York now operate facilities for 10,000 students on three campuses. This venture uses land, buildings and equipment at Plattsburg Barracks, Rhoads General Hospital at Utica and the Naval Training Station at Sampson.

Farragut College and Technical Institute in northern Idaho is using the former Naval Training Station at Farragut as a nonprofit private college. The American Institute for Foreign Trade at Phoenix, Ariz., attended almost wholly by veterans, is a third example of an entirely new college whose \$1,000,000 physical plant was transferred to a nonprofit board of trustees by the War Assets Administration.

Existing colleges have added new campuses through W.A.A. transfers and use permits. It is difficult to arrive at a dollar value for federal real property given or leased to colleges. At the values set by W.A.A. appraisers as a preliminary to offering the prop-

erty for sale, the aggregate worth real property given the colleges "for keeps" is approximately \$380,000,000. It is even more difficult to place a dollar value on facilities leased at nominal cost for temporary use. Nevertheless, if one assumes that the leased facilities will be used by the colleges for four years and that the annual rent should be estimated at 3 per cent of W.A.A. sale value, the federal contribution to colleges from leased property would approximate \$36,500,000.

F.P.H.A. HOUSING FOR VETERANS

To aid colleges in meeting the unprecedented strain on student housing facilities, especially for married veterans, the Congress in December 1945 made the first of two appropriations to the Federal Public Housing Authority for use in providing temporary housing for veterans and their families. Approximately \$178,000,000 of the \$445,000,000 appropriated was allocated for use at educational institutions. The law required federal owning and disposal agencies to transfer buildings and equipment to F.P.H.A. without cost, thus permitting the entire appropriation to be used in dismantling, removing and re-erecting structures.

At the end of February 1947, F.P.H.A. had firm contracts to complete 95,456 accommodations. It had completed 73,211 accommodations and had 22,245 under construction. Of the completed accommodations 31,949 are family type of apartments and 35,410 are dormitory rooms. These accommodations and equipment cost the government approximately \$300,000,000.

If the value to colleges is placed at 20 cents on the dollar, the contribution of buildings and equipment amounts to \$60,000,000, to which must be added \$178,000,000 and more required for removal and reconstruction. Moreover, F.P.H.A. transferred title to 33,500 other accommodations valued at \$1,000,000 which colleges moved and reconstructed at their own expense.

ASSISTANCE UNDER P.L. 697

In order further to facilitate the provision of educational facilities for veterans attending schools and colleges, the Congress in August 1946 enacted Public Law 697. The act authorizes the U. S. commissioner of education to determine, upon request from an educational institution, whether there

exists or impends an acute shortage of educational facilities required for persons engaged in a program of education under the Servicemen's Readjustment Act.

When the commissioner's representative makes a finding of need for buildings and equipment, the bureau of community facilities of the Federal Works Agency is authorized to fill it without expense to the school or college when and as facilities are transferred to it by the War Assets Administration. Congress has authorized F.W.A. to spend \$100,000,000 for the purposes of the act and has appropriated \$75,000,000 of the sum for immediate use.

Steps have been taken to ensure a rapid and equitable distribution of facilities to educational institutions in each state. The \$75,000,000 appropriation has been allotted according to the ratio the veterans of a state bore to the total number of veterans in the United States. Administration has been decentralized through placing in each of the nine division offices of the Federal Works Agency an educational staff qualified and authorized to determine need. This arrangement permits school and college officials to deal face to face with responsible U. S. Office of Education representatives and the F.W.A. staff which has immediate responsibility for supplying facilities for which a need has been established.

On March 1, 1947, the Veterans' Educational Facilities Program had been operating for six months. It had received justifications of need from 1440 schools and colleges for 30,456,654 square feet of floor space and for large quantities of more than 1,000,000 items of equipment. Representatives of the U. S. commissioner of education had determined that an acute shortage existed for 17,768,427 square feet of floor space and for most of the equipment requested. To meet this need, the bureau of community facilities of the Federal Works Agency had acquired from W.A.A., without cost, 6190 buildings having more than 21,000,000 square feet of space and all of the usable educational equipment then available. The W.A.A. fair value on the buildings is \$50,000,000, and on the equipment, \$13,000,000.

The accompanying table shows for the United States and for each state how \$67,303,677 of the \$75,000,000 appropriation for Public Law 697 has been allocated for buildings and equipment.

AMHERST'S SYSTEM OF KEY CONTROL

HERBERT G. JOHNSON

Comptroller, Amherst College

IN THE LATE 30'S IT BECAME APPARENT that something had to be done about the key situation at Amherst College. We were working under a master key system installed several decades before. There were known to have been issued at least 40 grand master keys and probably there were as many more unauthorized ones in circulation. Furthermore, anyone desiring access to the outside door as well as to his own office had a submaster for the entire building so that one way or another there was little or no privacy.

In studying the situation, it was apparent that there were six major decisions to make: (1) the character of the master key system, (2) a systematic plan of conversion to the new system, (3) key numbering system, (4) method and location of storage of keys, (5) approvals required for the issue of keys and (6) records to be kept.

KEY SYSTEM SELECTED

After consultation with a representative of the lock manufacturer, who was an expert on devising master key systems, we decided on a system that provides, for a given building: (1) for each room an individual key which also opens the outside door, toilets within the building or any other rooms that should be accessible to building occupants but not to outsiders, and (2) the submastering of any group of rooms within the building—for example, our psychology department has a series of small laboratory cubicles, each individually keyed for the student who works in the cubicle but with a submaster for the use of the psychology staff; (3) a building master that opens everything in that building.

With this procedure repeated for all buildings, there are an exterior door master for the use of truck drivers and mechanics in opening outside doors only and a grand master that opens everything in the system.

Having decided on a system of this character, we prepared a chart of the various buildings, starting with the library, which at the time seemed most in need of increased protection. On this chart we indicated what doors were to be keyed and the chain of master control. From it the manufacturer made up a brand new set of cylinders and keys which our mechanics installed. The old cylinders were returned to the manufacturer to be converted to use for the next building. Thus we had an initial expense of perhaps \$2.50 each for new cylinders for the first building but subsequently the used cylinders were rebuilt at an expense averaging 75 cents each (prewar prices). This procedure continued progressively building by building until interrupted by the war. It now is being resumed.

The best and most compact form of key storage we could find at the time has racks that provide for the storage of a great variety of keys in a compact space. The pattern key is sealed to a tag that never leaves the rack except for the production of duplicates. Spares are hung on the same hook with their pattern key. The only shortcoming of this system is its lack of capacity for more than five or six spares but we have overcome this to some degree by using auxiliary rings. The best ring we could find for the purpose is a poultry ring made of celluloid which opens much more easily than the conventional steel ring.

SERIAL NUMBER PLUS COPY NUMBER

At first we considered a code numbering system whereby the number on the key would identify it as to building and door. This was discarded, however, as it was apparent that it would be fairly easy for anyone to decipher the code and then a lost key could easily fall into misuse. Instead, we adopted a straight serial number system, identified on the charts and known to the custodian of each building and, of course, to the individual

holders of the keys. The serial number is followed by an individual number indicating the particular key, from one up to as many as exist of that pattern. Thus, 35-8 means the eighth copy of pattern key No. 35. We bought a stamping machine with rotary dials with enough digits to number the keys in this manner; ours has $\frac{1}{8}$ inch figures, but $\frac{3}{8}$ inch or $\frac{1}{2}$ inch would be much more legible.

The comptroller was given the responsibility for keeping and issuing keys under an established system of approvals. The president's approval is required for grand master keys which are issued only to a few members of the administrative staff and to the watchmen and police. The comptroller uses his discretion in the issue of keys to faculty and staff but in the case of buildings, such as the library, the librarian's approval is required. No keys under this control are issued to students without approval of a member of the faculty or staff. Deposits are required from students but not from faculty or staff.

CONTROL FORMS DEVISED

Upon the creation of a key and lock, there is initiated a 3 by 5 inch card showing the serial number, the building, the room and the approval required. Below this is space to record the issue of keys, the subnumber, to whom issued, the date issued and the date returned, thus providing a permanent record of who has had a copy of this key at any time and the particular key that each person had in his possession.

Keys are issued on a key requisition form $2\frac{3}{8}$ by $4\frac{3}{4}$ inches. This form has a space for approvals and also serves as a receipt.

For each person to whom any keys are issued there is provided a 3 by 5 inch open end Kraft envelope. The face of the envelope is headed with the person's name and department and provides for listing the keys as issued and returned. The receipted requisition

A.C.# 35	BUILDING Converse	ROOM# 4	DOOR# 26
N.F.M.		1st Fl. N.W.	
APPROVAL REQUIRED		LOCATION	
YALE#	DATE ISSUED	DATE RETURN	DATE ISSUED
KEY#	ISSUED TO	KEY#	ISSUED TO
1	John Doe		
2	Henry Smith		
3	W.A. Jones		

DOOR# 26

J.W.

DATE ISSUED

KEY REQUISITION

Comptroller: Please issue to John Doe

Key No. 35 for door in: #4 Converse

(Give location, and key No. if known)

Date: 7/15/45 Approved: N.F.M.

A deposit of 50c per key is required from undergraduates, temporary dept. assistants and other temporary employees. No deposit is required for the initial issue of keys to regular members of the faculty and staff, but 50c will be charged for duplicates, and for keys not returned.

I acknowledge receipt of key No. 35-1

I agree to safeguard it for my own personal use, and not to dispose of it other than by surrender to Comptroller's office.

Date: 7/16/45

Signed: John Doe

> NO DEPOSIT

NON-REFUNDABLE CHARGE \$ _____

REFUNDABLE DEPOSIT \$ _____

86-741-3M

tion for every key held by each person is filed in his envelope.

MAINTENANCE METHODS IN THE MIDDLE EAST

AZIZ K. NAHHAS

Superintendent of Buildings and Grounds
The American University of Beirut
Beirut, Republic of Lebanon

THE AMERICAN UNIVERSITY OF Beirut was founded some 80 years ago just outside the city of Beirut, Lebanon. Its 67 acre campus, now surrounded by the growing city, overlooks the majestic Mediterranean. In the background are the colorful Lebanon Mountains whose summits are snow covered most of the winter.

On the university's sloping grounds are 50 buildings of various sizes housing the school of medicine, the school of pharmacy, a 220 bed hospital, an outpatient clinic, the school of arts and sciences, the school of business administration, the school of civil engineering, the school of music and the International College, including the junior college and the preparatory schools. The campus is encircled by a wall with entrance gates controlled by gatemen on duty twenty-four hours a day.

The largest American university outside the United States, its enrollment is 2500 students; the faculty and staff number about 300 with an additional 300 nonacademic employees. Practically all religions and some 30 nationalities are represented in the faculty and the student body. Students come mainly from the countries of the Middle East: Lebanon, Syria, Palestine, Trans-Jordan, Iraq, Saudi Arabia, Persia, Egypt and Cyprus. About 800 students live and board in the residence halls.

The university is administered by its faculty in Beirut, is supported by a board of trustees in New York City and operates under a charter from the state of New York and under an agreement with the Lebanese government. The tuition fee a year is \$300 but scholarships are granted to students who excel in their work and employment scholarships are available for needy students.

The university is coeducational in the upper divisions and in the professional schools but not in the lower divisions. There is a junior college for women 1 mile from the campus where women students study during their freshman and sophomore years. The residence hall for women students is outside the university walls.

As would be expected in a small university, the buildings and grounds department cannot have a large organization. The committee on buildings

and grounds is composed of three members of the senate and the superintendent; they formulate the policy of the department. The superintendent is responsible to the chairman of his committee who, in turn, is responsible to the president. At present, the superintendent and three clerical assistants form the executive organization of the department. The various trades are supervised by their foremen who actually work with their groups in addition to supervising them.

GROUPS HAVE NATURAL BEAUTY

It might be assumed that such a small organization could not do much; on the contrary, a great deal is accomplished. The sloping grounds of the campus, assisted by natural scenery that can hardly be surpassed, lend themselves to beautiful landscaping of unique character. Huge pines and cypresses rule supreme over many parts of the campus to contribute color during winter and shade during summer. Palm trees, too, are common.

Mass color effect is produced by clumps of flowering shrubs and trees, each clump of a single variety. These groups flower at various times of the year so that in every season the mass color effect prevails on the campus in one part or another.

Certain sections of the grounds are allowed to remain in their naturally wild state and these are enhanced by means of flower plants brought down from the mountains of Lebanon. During the spring a considerable part of the grounds is thickly covered with wild flowers uncommon in the locality.

The outside walls of most of the buildings are covered with Japanese ivy. Flower beds and grass areas provide additional color and gaiety most of the time. Effort is being concentrated on procuring flowering shrubs that need care and watering for the first five years only and, once they are

deeply rooted, grow as in their wild state without additional expense or attention except for periodic trimming.

Maintenance of swimming pools is not a problem as a tunnel leads from the campus under the city boulevard to the Mediterranean. Students can go swimming seven or eight months of the year in a section of the sea restricted for use by the university.

During the war years maintenance was a real problem for the department. Wages went up 400 per cent and supplies were not available. No installations have had replacements since 1939. The maintenance of such installations, already run down, was a challenge to us throughout the war, yet we emerged with most of our facilities in fairly good running condition. This was possible because a large backlog of supplies had been bought and stored prior to the outbreak of the war. For example, the 500 feet of 3 inch pipes installed last year in our well water system had been in our stores since 1939.

During the war outside painting necessitated by weather conditions was done regularly every four years on all the buildings; inside decorative painting was omitted. No cut was made in the janitorial staff; as a matter of fact, the service was improved over prewar practice. Window washing was not curtailed at all, though only rags and water were used most of the time. The number of tradesmen, on the whole, had to be increased owing to an increase in service calls.

Trade unions, which were unknown in this country before, are being organized now. Strikes, not entirely unknown, are becoming commoner. In the university, all members of the non-academic staff benefit from a hospitalization program by which they receive full medical care and hospitalization in case of sickness, a negligible fee

being taken from their wages for that purpose. In addition, employees are protected by the law of the country to the extent that at the termination of service they are entitled to an indemnity equivalent to one month's salary for each year of service. Most university employees do not belong to trade unions because they feel that they do not need the protection of such organizations.

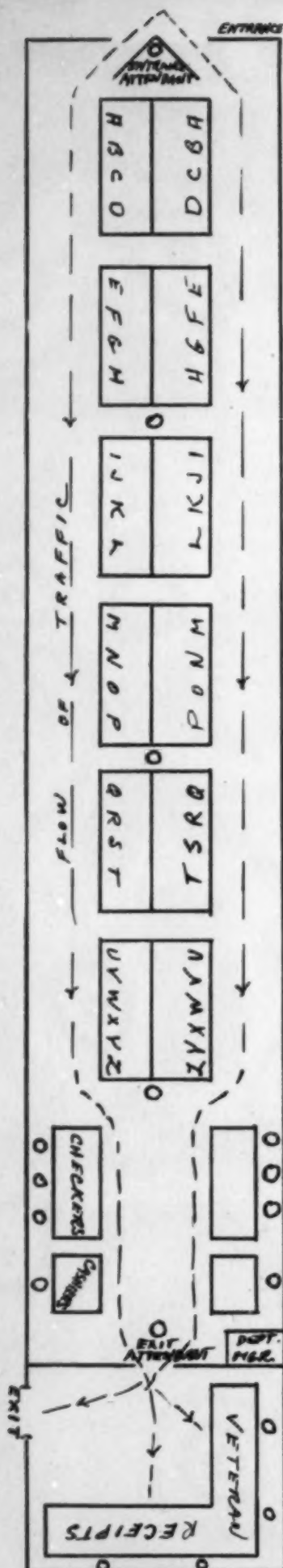
As we look at the future we are not content with the fact that our campus is the most beautiful spot in the Middle East. We have a great deal to do along other lines. In the old buildings most of the bathrooms have to be renovated; new sanitary installations are needed; electric wiring and fixtures have to be completely replaced. In the remodeling of old buildings and in projected new construction, we intend to standardize most of our installations, supplies, fixtures and mechanical equipment to avoid the pitfalls of the present where, for example, in the same building may be found three or four types of electric fixtures manufactured in as many European countries.

An effort is being made to obtain high grade materials so that the extra original cost will be more than offset by future savings on maintenance. In addition, we have to improve on our methods by adopting modern labor saving devices. Our purpose is not to cut the budget but to make more improvements and have more efficient service with the same funds.

We are introducing now a system of progressive maintenance in which inspection squads of various trades will be on duty all the time inspecting the various buildings and doing the necessary repairs irrespective of service calls. This will not eliminate service calls entirely but will reduce them to a minimum, will keep the buildings in good shape and will retard deterioration.

NATURAL BEAUTY has been an ally of the grounds superintendent at the American University of Beirut. Situated between the Mediterranean and the mountains of Lebanon, the sloping campus is rich in pines, cypresses and native flowering shrubs. Even wild flowers have been brought down from the mountains to delight students and staff. Buildings are covered with Japanese ivy.





IT'S NOT THE SIZE,

IT'S THE SYSTEM IN BOOKSTORES

Teachers College, Columbia University, prescribes a "book-a-teria." No panacea for overcrowded conditions, its self service does relieve

ARNOLD E. KNUTSON

Manager, Teachers College Bookstore
Teachers College, Columbia University

"FOR A CASE OF OVERCROWDED AND confused bookstore conditions take a 'book-a-teria' once each session—it won't cure but will relieve," so reads the testimonial of a confirmed user.

We, being the user, can only pass on our recommendation with information sufficiently detailed to permit adoption of the self service method of distribution if desired. Certainly, here at Teachers College, Columbia University, the system has been enthusiastically accepted by administration and students alike.

Early in the spring of 1946 we envisioned an increase of enrollment surpassing any previous year along with innumerable details brought about by the sharp increase in veteran student enrollment. With a forecast summer enrollment of more than 10,000 students, our book department, approximately 24 by 20 feet, was totally inadequate for placing books in the hands of summer school students who come here for a short, concentrated period of study and who need instructional materials when classes first meet. Necessity, or perhaps desperation, caused the establishment of the system at Teachers College.

The system itself is not a new one but an adaption of a self service feature to bookselling, incorporating within it a simple method of providing civilian and veteran alike with materials in a minimum of time.

Briefly, our layout is a corridor 10 feet wide and 130 feet long, one end serving as an entrance, the other end as an exit. All side entrances are closed. Books are placed on tables in

the center of the corridor, arranged alphabetically by author with an equal quantity on each side to make two identical sales lines. Checkers' tables and cashiers' stands are so placed that the two sales lines are in operation throughout.

An attendant at the entrance has three duties: (1) to control the flow of customers, both as to number entering and sales line to enter; (2) to examine portfolios or brief cases, indicating by code on the sales check (exhibit A) the new or used books taken into the sales room so that checkers may determine books chosen from tables, and (3) to provide information and instruction to veterans.

Attendants are placed in charge of a section of tables to assist customers and to maintain and replenish stock as needed from the reserve stored beneath the tables.

The customer passing through the line presents selected books to one of the checkers who segregates any books brought into the sales room. Books purchased are listed and totaled on the sales check. The sales check, showing total due, is then presented to the cashier who receipts and dates both sections of the sales check, giving the lower portion as a cash receipt to the customer and retaining the upper portion. Up to this point no differentiation has been made between civilian and veteran student.

An attendant placed at the exit sees that each customer is in one of the lines passing a checker or cashier and requests examination of a cash receipt in questionable cases. The

book department manager is readily available in this area to handle adjustments, claims or special requests.

At this point the civilian student needs no further attention and makes an exit. The veteran student now takes the cashier's receipt to special tables where it is exchanged for properly executed Uniform Receipts. (See Exhibit B.) The Uniform Receipts, devised by the financial office, are provided to all veteran students who are paying cash for books and supplies and who will ask reimbursement from the financial office for such expenditures.

The two lines, properly functioning, should process 500 or more students an hour. Sufficient flexibility should be provided at the cashier section since peak loads will tend to create bottlenecks at this point.

The layout sketch is intentionally not drawn to scale in order to emphasize the system rather than to provide an exact layout. Although we feel the straight line method more desirable, a group of tables properly placed to direct the flow of traffic would permit adoption of such a system in any large room or corridor not in a straight line. Consequently this system has wide application.

Three layout features are necessary for successful operation: (1) a single entrance; (2) a selling area providing duplicate sales lines; (3) a single exit to simplify checking.

All phases of the selling operation must be controlled. The attendant at the entrance must control the intake to prevent overcrowding and confusion. In the sales area the flow of traffic must be under control, permitting direction to either or both sales lines, so that a disruption in one sales line will still permit customers to move through the other line. Definite lines must be maintained at the checkers' tables and cashiers' stands so that every customer is required to submit his sales check and make payment with the least amount of confusion. Once a customer has passed the attendant at the exit, he is not permitted to re-enter except through the regular entrance.

In the meantime our store maintains its usual service except for the sale of textbooks. For the time being, our book department in the store is limited to accepting special orders for titles not carried in stock and to serving mail order and telephone customers, as in the normal day's business. Being relieved of congestion in our book department, our stationery and supply section can better serve the student with supplies and equipment.

The number of employees needed to operate such a system is dependent upon the size of the entire unit. Temporary employees are more readily adaptable since scope and responsibility of each position are well defined; however, the high degree of coordination

PRESENT TO CHECKER WITH BOOKS YOU HAVE SELECTED

SALES CHECK No. _____											
TEACHERS COLLEGE BOOK STORE											
A—1 2 3 4				B—1 2 3 4				C D			
TOTAL PURCHASE \$											
DATE				CASHIER				CHECKER			
SALES RECEIPT No. _____											
TEACHERS COLLEGE BOOK STORE											
1224 AMSTERDAM AVENUE											
NEW YORK 27, N. Y.											
UNIVERSITY 4-1740				(AT 120TH STREET)							
DATE				CASHIER				TOTAL PURCHASE \$			

EXHIBIT A. Sales check on which attendant codes books brought into the sales room.

of all positions requires careful selection of each employee chosen. Capable help must be placed in the key positions of cashiers, entrance attendant and exit attendant. Inattention to duty in these positions readily results in serious financial loss.

Our students enjoy the privilege of personal selection and the opportunity of leisurely examination of materials available in related fields. We sell more books; returns and exchanges are few in number. We serve a customer—we make a friend.

STUDENT'S NAME _____ (Last) (First)		TEACHERS COLLEGE, COLUMBIA UNIVERSITY New York 27, New York		No 40450	
ADDRESS _____		UNIFORM RECEIPT FOR CASH PAYMENT BY VETERANS FOR INSTRUCTIONAL SUPPLIES			
SERIAL NO. _____	NAME OF VENDOR _____	ADDRESS OF VENDOR _____			
QUANTITY	DESCRIPTION OF GOODS FURNISHED If books, give Title, Author, Publisher and Edition	PRICE*	EXTENSION		
* Price must not exceed regular retail or ceiling price, if any		Teachers College, Columbia University is exempt from New York City Sales Tax		TOTAL	
VETERANS CLAIM: I hereby certify that I have purchased the goods indicated above from the vendor indicated; that they are for my own use in connection with _____ in which I am registered (course name and number)			VENDOR'S RECEIPT: Use "Paid" stamp or sign in ink. Received payment for supplies listed above. Items and prices are correct and just.		
at Teachers College, Columbia University under the provisions of the Servicemen's Readjustment Act of 1944 (or of Public Law, 16, 78th Congress), as amended, and I request reimbursement for this expenditure, the same being due me under my entitlement.			Firm name:		
(Date)			By:		
(Signature of Student)			Date:		
DO NOT WRITE BELOW THIS LINE					
APPROVED	POSTED	CHECK CERTIFIED CORRECT	AMOUNT PAYABLE	DATE PAID	CHECK NUMBER

EXHIBIT B. Uniform Receipt devised by the financial office. It is provided veteran students who pay cash for their books and supplies and then ask reimbursement from the financial office to cover the expenditures.



HIGH ALTITUDE COOKING

EMMA J. THIESSEN

Associate Professor of Home Economics
University of Wyoming

PIONEERS WHO MIGRATED INTO THE mountainous areas of the United States found that queer things happened to their cooking. These earlier settlers have known for many years about the effects of high altitude upon baking.

Unexpected results of high altitude cooking, however, continue to surprise newcomers to western mountain areas. New residents are often chagrined to find that their favorite cake and doughnut recipes fail. Their vegetables take longer to cook. Their home canned, low acid vegetables frequently will not keep when processed in the ordinary water bath or in the steam pressure cooker if low altitude pressure and time tables are used. The cook who uses a thermometer to determine the finish temperatures for jellies, candies and icings soon becomes aware that an entirely new set of temperatures must be used.

These high altitude cookery problems have been under investigation in the food research laboratory of the agricultural experiment station of the University of Wyoming for the last several years. Some of the results of the investigations and altitude corrections will be discussed here briefly.

CAKES AND DOUGHNUTS

The testing of many sea level cake and doughnut formulas at the Wyoming experiment station, which is 7200 feet in altitude, has shown that practically every one needed some modification before good results could be obtained. Cakes baked from low altitude formulas either fell during baking or became coarse or gummy.

One simple explanation for these failures is that the pressure of the air is greatest at sea level and it becomes increasingly lighter the higher the level. The extent of such variations

in the atmospheric pressure is listed in table 1. These differences are frequently expressed in terms of the height of a column of mercury the atmosphere can support. The relation of such differences in atmospheric pressure to the formation and expansion of the gases liberated from the leavening agent in dough products is of prime importance in making altitude adjustments.

The higher the altitude the less leavening is needed. At the Wyoming station, it was found necessary to reduce the leavening as much as 50 or 60 per cent.

With richer cakes better results were obtained when the sugar was lessened. A reduction of two tablespoons from each cup of sugar proved sufficient for altitudes of from 4000 to 6000 feet and three to four tablespoons from each cup for elevations of 7200 feet. In the richer cakes a slight reduction in fat may be advantageous.

With most quick bread and cake formulas, larger proportions of liquid are needed. The increase needed with cake flour is usually about two tablespoons for each cup of liquid used. With all purpose flour the increase may need to be as much as four tablespoons a cup. One of the chief reasons for increasing the liquid is that flour dries out in the semi-arid high altitude regions, particularly when it is stored in sacks or kept in an ordinary flour bin.

Laboratory tests in the food research laboratory at the University of Wyoming show that small changes in the moisture content of flour have a decided effect upon increasing the absorption of liquid in the dough.

To determine the extent to which flour dries out, fluctuations in the weight and moisture of small bags of flour exposed to room temperature and low humidity were measured. The flour when milled had a moisture content of 13.5 per cent. When the relative humidity of the laboratory ranged from 15 to 20 per cent, the percentage of moisture in the flour settled to about 6.5 per cent and when it ranged from 25 to 30 per cent the moisture of the flour became fairly constant at 8.6 per cent. With an increase in the relative humidity of the laboratory from 45 to 60 per cent, the percentage of moisture in the flour rose to 10.6 per cent.

The temperature for baking need not be increased as is sometimes advocated. Such high baking temperatures as 400° or 425° F. for layer cakes produced an overbrowned and compact product.

To obtain good cake doughnuts free from cracks and with a normal fat absorption at an altitude of 7200 feet, it is necessary to modify most sea level recipes. In rich formulas, the fat must be reduced as well as the leavening. A certain proportion of hard wheat flour in the mix results in less fat absorption and makes it possible to use more sugar.

The best temperatures for deep fat frying at high altitudes are slightly below those recommended at sea level in order to prevent too deep coloring while the food is cooking. The browning is more pronounced with reused fats, it has been noted.

BOILING WATER TEMPERATURES

The higher the altitude the less the pressure of the atmosphere, hence the lower the temperature of boiling water and solutions. Water boils at 212° F.

or 100° C. at sea level. The temperature of boiling water decreases as the altitude increases to the extent indicated in table 1.

Table 1 shows also the relationship of the boiling temperature to changes in the atmospheric pressure.

Such differences as are indicated in the temperature of boiling water necessarily affect the cooking of many foods. The boiling of vegetables, the processing or canning of fruits by the water bath method and the end point temperatures for sugar cookery, all are modified by changes in atmospheric pressure. At extremely high elevations the temperatures of boiling water may be only slightly above lukewarm. The use of a pressure cooker to raise the temperature for cooking vegetables and meats in a water medium is, therefore, practically a necessity at the highest elevations listed in the table.

Table 1—DECREASES IN TEMPERATURE OF BOILING WATER WITH INCREASES IN ALTITUDE

Elevation (Feet)	Temperature of Boiling Water		Barometric Pressure (Inches of Hg.)	Atmospheric Pressure (Lbs. per Sq. In.)
	Fahr.	Cent.		
Sea level	212.0°	100.0°	29.90	14.70
2,000	208.3	97.9	27.77	13.63
3,000	206.4	96.7	26.77	13.14
4,000	204.6	95.8	25.80	12.67
5,000	202.8	94.8	24.87	12.21
6,000	201.0	93.8	23.97	11.77
7,000	199.3	92.9	23.11	11.34
8,000	197.5	91.9	22.27	10.93
9,000	195.7	90.9	21.47	10.54
10,000	194.0	90.0	20.69	10.16

Reference: Smithsonian Meteorological Tables, pp. 130-136.

variations, it is necessary that the time for boiling vegetables be lengthened. In a series of tests in the food research laboratory at the University of Wyo-

The vegetables at both laboratories were cut into identical pieces.

Table 2 reveals that the time increase needed at the 7200 foot eleva-

Table 2—TIME REQUIRED FOR BOILING VEGETABLES AT HIGH v. LOW ALTITUDES

Vegetable	How Prepared for Cooking	7200 Ft. Altitude	600 Ft. Altitude	Per Cent Increase
		Timetable Laramie, Wyo.	Timetable Chicago*	
		Minutes	Minutes	
Beets (stored)	Washed, left whole	210-240	—	—
Beets (fresh)	Left whole	135-150	40-60	63-66
Cabbage (white)	Shredded	13-15	8-9	38-40
Cabbage (green)	Shredded	9-10	6-8	22-30
Cauliflower	Separated into flowerets	20-24	8-10	58-60
Carrots (stored)	Cut in thirds lengthwise	35-45	30-40	11-14
Carrots (fresh)	Cut in thirds lengthwise, sliced across	32-41	20-25	37-39
Onions (yellow)	Partially quartered	45-55	20-25	55
Potatoes, Irish	Peeled thin, cut in halves lengthwise	32-44	25-35	21-31
Parsnips	Cut in thirds lengthwise and across once	30-38	25-30	16-21
Rutabagas	Cut lengthwise in slices ½ inch thick	32-38	25-30	21
Squash	Pared and cut in pieces 2 by 3 inches	20-25	20	20-25
Sweet Potatoes	Cut crosswise once and lengthwise in halves	23-30	15-25	21-26
Turnips (stored)	Pared and cut in ¾ inch cubes	20-30	20-25	16-25
Turnips (fresh)	Pared and cut in ¾ inch cubes	17-23	—	—

1 to 1½ tsp. salt per quart of boiling water is used.

Note: Water must be boiling rapidly when vegetables are put in for good results with timetable.

*Halliday and Noble: *How and Why of Cooking*, University of Chicago.

BOILED VEGETABLES

To compensate for the cooler temperatures of boiling water at high ele-

ving (7200 feet in altitude), the additional time required beyond that used at the University of Chicago (600 feet in elevation) was measured.

Table 3—TEMPERATURE READINGS WITHIN STEAM PRESSURE COOKER AT DIFFERENT ALTITUDES, EXPRESSED IN DEGREES FAHRENHEIT

Lbs. Press.	Sea Level	3000 Feet	4000 Feet	5000 Feet	6000 Feet	7200 Feet	8000 Feet
5	227.5	223.0	221.4	220.0	218.6	216.9	216.1
10	239.5	235.6	234.8	233.5	232.4	231.1	230.4
15	249.8	247.3	245.9	244.8	243.8	242.7	241.8

tion above that of Chicago averaged from 20 to 30 per cent for most of the common winter vegetables. The increase was notably higher than 30 per cent for certain vegetables, such as beets, fresh or stored.

STEAM PRESSURE COOKING

The reading of the gauge on the pressure cooker is affected by the altitude. At higher altitudes it takes more pressure in the cooker to obtain the same cooking temperatures as at lower altitudes. The corresponding temperatures for the 5, 10 and 15 pound pres-

Table 4—SUGAR COOKERY AT HIGH v. LOW ALTITUDES

Finish Point for Candies Water Test	Type of Candy	Finish Temp. 200 Ft.	Finish Temp. 7200 Ft.
Very soft ball can just be formed under water	Cocoa fudge, sirup for boiled icing with egg white	234-235°	220-222°
Medium soft ball	Fudge, panocha	236-237	223-224
Soft ball	Sea Foam, fondant	238-239	225-226
Medium firm ball	Divinity	240-242	227-230
Firm ball	Caramels, plain	244-246	231-234
Medium hard ball	Caramels, fancy	248-250	235-238
Hard ball	Toffee	252-254	238-239
Very hard ball	Taffy	256-262	242-246
Medium crack	Pulled mints	266-277	250-259
Hard crack	Butterscotch, lollipops	282-312	260-298

tures at different elevations are listed in table 3 on the preceding page.

Since one pound of pressure is equivalent to approximately 2° F., the increase in pressure needed above the sea level reading for different eleva-

tions can be readily calculated by referring to table 3.

CANDIES, CAKE ICINGS

It is evident from table 4 that the finish temperatures for all boiled cake

icings or candies must be lowered as the elevation increases.

A fudge icing, for example, is of the proper consistency when cooked to a temperature of 234 to 235° F. at sea level. The same formula, however, will need a finish temperature of only 220 to 222° F. for a similar consistency at an elevation of 7200 feet.

Investigations are still in progress by agricultural experiment stations and commercial firms upon altitude cookery problems, particularly in regard to adjustments of baking formulas.

It has been the purpose of this article to outline some of the most fundamental changes needed in everyday cooking and to show the reasons why such modifications are necessary. It is hoped that the modifications as outlined here may be of value to newcomers in these areas.

SAFETY CAN BE BOUGHT

L. W. HAGERUP

Safety Engineer

ACCIDENTS INVOLVING STUDENTS AND employes in our colleges and universities can be prevented only when there is a high degree of teamwork.

Experience shows that a safety job cannot be done efficiently by one man or by the establishment of a safety engineering department. Each department should have certain safety duties and accident prevention responsibilities.

These responsibilities should be carried out along three general lines of activity, comprising a systematic and definite safety program based on the fundamentals of the three "E's" of safety engineering, namely, engineering, education and enforcement.

Engineering is concerned with the physical safety of buildings, laboratories, shops, machinery, equipment, athletic facilities and other properties.

Education relates to the instruction in safe work procedures of the student body and the operating personnel, as well as to instruction in athletic programs, first aid and safety courses.

Enforcement includes the means adopted to obtain full compliance with the safety suggestions offered.

Engineering is one of the most effective of the three "E's" in controlling accidents. While safety is necessarily the result of teamwork, the comptroller or purchasing agent is in a position to do much to further the

cause of accident prevention. It is his duty to select and purchase machinery, tools, laboratory material, athletic equipment and other materials used in the operation of an educational institution. It should be his responsibility to see that in design, manufacture or choice, safety is stressed.

The question is often asked, how can the purchasing agent do this? Certain fundamental suggestions have been adopted in various universities and colleges which have been found entirely practicable. The purchasing agent must:

1. Have adequate information about cause of accidents throughout the premises, including those occurring in the shops, classrooms, athletic plants and to employes as well as students.

2. Have adequate knowledge of machinery, laboratory processes and uses of equipment he is to purchase.

3. Know state safety requirements, lists of approved devices and appliances and something about the laboratories that approve such devices.

4. Check to see that any machine or piece of equipment complies fully with the safety regulations of the state in which his school is located, since safety requirements vary widely.

5. Be acquainted with specific loca-

tions and departments, athletic grandstands and equipment needed.

6. Participate in all accident investigations where injuries may have been caused through failure of equipment or material.

7. Keep in touch with all safety activities.

8. Know maximum load strength, how to obtain long life of equipment without deterioration and see that there is frequent adjustment of equipment.

9. Know something about the effect of fatigue upon employes and students.

The comptroller or purchasing agent controls to a considerable extent the selection of supplies that affect so heavily the severity and frequency of accidents. Even when other departments and individuals are charged with a measure of safety responsibility, still if he will and if he is sincerely interested in helping stop accidents, the purchasing agent or comptroller can do much to improve the safety record of his institution and certainly can "purchase safety."

There is great satisfaction to be obtained through an adequate safety program, under which accidents decrease or disappear from an institution. The good effect on the morale of the student body and operating personnel cannot be overestimated.

EXEMPTION FROM STATE TAXES

M. M. CHAMBERS

American Council on Education



NEW CONDITIONS APPEAR constantly to require new definitions of the sphere within which nonprofit universities and colleges are properly exempt from taxation under state laws.

A typical illustration of these perennially changing circumstances occurred when Johns Hopkins University entered into a wartime contract with the federal government and proceeded thereunder to acquire 40 acres of land near Washington, some 40 miles from its plant in Baltimore, and erected buildings there and operated an extensive scientific research undertaking.

FEDERALLY OWNED PROPERTY

Montgomery County, Maryland, in which the research plant is located, assessed the land for taxation on the too simple theory that all land is taxable against the record owner, in this case Johns Hopkins University. Examination of the contract disclosed that the federal government was bound to reimburse the university for the purchase price of the land, the cost of the buildings and any taxes paid by the university on the buildings; and the university was bound ultimately to transfer the entire property to the federal government or its designee. Hence, decided the Maryland court of appeals, the university held only the naked legal title to the land and the equitable or beneficial title belonged to the federal government. Therefore the land was exempt under the constitutional principle that the states do not tax the property of the federal government.¹

In support of this conclusion the Maryland court quoted from the opinion of the Supreme Court of the United States in the 1944 case of *U. S. A. and Mesta Machine Company v. County of Allegheny, Pennsylvania*, in which Mr. Justice Robert H. Jackson spoke for the majority, with Justices Roberts and Frankfurter dissenting: "Actual possession and custody

of government property nearly always are in someone who is not himself the government but acts in its behalf and for its purposes. He may be an officer, an agent or a contractor. His personal advantages by way of the relationship by way of salary, profit or beneficial personal use of the property may be taxed as we have held. But neither he nor the government can be taxed for the government's property interest. Rarely does a state or municipality pursue the federal government itself."²

Thus the decision rested solely on the basis of federal ownership of the land in question and no point was made regarding the nonprofit nature of Johns Hopkins University or of the public character of the purposes for which the land was used.

TECHNOLOGICAL INSTITUTE

A New Jersey court, sustaining the exemption of Stevens Institute of Technology from property taxation by the city of Hoboken, had occasion to stress the fact that research is an important function of institutions of higher education. Perhaps emboldened by the recent New Jersey decision holding the Rutgers University stadium taxable,³ the city placed on its assessment rolls some of the Stevens dormitories, the dining halls, the president's house, faculty residences owned by the institution, the gymnasium, two athletic fields and various garages, tool houses and other minor buildings. One of the more important buildings assessed was a "towing tank research laboratory building," constructed during the war to provide for experimentation which had been begun and carried on with great inconvenience in the institution's swimming pool.

All these assessments were canceled by the county and state tax boards and the court refused to review that decision and explained its reasons at

¹322 U. S. 174, 64 S. Ct. 908, 88 L. Ed. 1209 (1944).

²Trustees of Rutgers University v. Piscataway Township in Middlesex County et al., (N. J. Sup.), 46 A. 2d 56 (1946). Digested in Coll. & Univ. Bus. 1:30 (September) 1946.

some length. One peculiarity is that Stevens Institute receives few if any municipal services at the expense of the taxpayers. It has no city water mains or sewers but pumps its own water and maintains its own private sewer system. It maintains its own roads and driveways, pays for its garbage removal and polices its own grounds. Another reason is that the Stevens athletic fields are not at all comparable with the stadium at Rutgers which includes permanent seating facilities for some 20,000 spectators. The fields at Stevens have no permanent seating stands at all and are actually used as student playing fields and not to attract public multitudes.

The decision fully recognizes the institutional function of providing suitable housing and feeding for students and faculty, by specifically justifying the exemption of the 3 acre curtilage and approaches to Jacobus Hall, a dormitory and social center; Castle Stevens, containing a 300 chair cafeteria in its basement; Palmer Hall, a dormitory, and the houses for the president and faculty members. As to the towing tank research building, the court stressed that research is an indispensable function of a college or university, as essential as is that of teaching.⁴

ACCESSORY PROPERTY

Early in 1942 the two adjoining Roosevelt residences at 47 and 49 East Sixty-Fifth Street, New York City, were sold to the B'nai B'rith Hillel Foundations, Inc., a District of Columbia corporation, the intent being to remodel the houses to form the Sarah Delano Roosevelt Interfaith Memorial House for certain religious and social activities of Protestant, Catholic and Jewish students at Hunter College of the City of New York. The Hillel corporation took title merely for the interim until a new corporation could be chartered and organized to own and manage the property. During the

³City of Hoboken v. Division of Tax Appeals, Department of Taxation and Finance et al., (N. J. Sup.), 49 A. 2d 587 (1946).

¹Johns Hopkins University v. Board of County Commissioners of Montgomery County et al., (Md.), 45 A. 2d 747 (1946).

period of remodeling, the property was not used.

On March 20, 1943, the projected new corporation was chartered by New York legislative act and subsequently the Hillel corporation delivered the deed to it. The activities for which the property was intended were installed and carried on in 1943 and subsequently.

On the question of municipal taxes for the fiscal years 1942-43 and 1943-44, it was held that the right of exemption existed only from and after March 20, 1943, when the new corporation came into existence. No exemption prior to that date could be allowed, for the double reason that the property was not in use for charitable purposes, and the temporary titleholder, though charitable in character, was foreign to the state and therefore excluded from the benefit of New York tax exemption laws.⁵

LAND LEASED FROM INSTITUTION

The Southern Baptist Theological Seminary in Louisville moved from its congested downtown site to a more suitable location at the edge of the city about 1928 and leased the former site to a realty company for ninety-nine years at stipulated rentals. Any buildings constructed by the lessee were to become the property of the seminary "as erected" and possession of the land and all improvements would pass to the seminary at the expiration of the lease. The lessee erected the Greyhound Bus Station and a large garage. In 1939 the lease was amended to reduce the rentals and to give the seminary one third of the annual net profits from the operation of the land and buildings.

The city of Louisville successfully asserted its right to tax the buildings, as against the contention that they presently belong to the tax exempt seminary. The Kentucky court of appeals reflected that some eighty years must elapse before the buildings can pass into the control of the seminary and concluded that tenure of buildings under so long a lease must be regarded for taxing purposes as practically equivalent to present ownership, though it did not extend the same principle to the land itself as has occasionally been done in some other jurisdictions.

⁵Hunter College Student Social Community and Religious Clubs Association v. City of New York, (App. Div.), 63 N. Y. S. 2d 337 (1946).

Said the court: "It can readily be foreseen that tax exempt organizations might be extensively used by commercial organizations to evade payment of taxes on real estate improvements through the medium of long term leases if we should deny the right of a taxing authority to make separate assessments of buildings and of lands in cases of this kind." Thus the buildings are taxed against the lessee as his own property.⁶

PROPERTY LEASED TO INSTITUTION

Cambria Park is a Wyoming stock corporation with 1000 shares at \$100 par. The charter provides that there shall be no distribution of dividends prior to final dissolution of the corporation but this, of course, does not change its proprietary character or enable it to qualify as charitable. Since about 1929 it has owned a park including a building erected at an initial cost of some \$250,000. For a few years the property was apparently operated on a "break even" basis but after about 1940 the receipts were not enough to pay the taxes of approximately \$500 a year and the cost of repairs. Eventually the county seized and sold it for taxes delinquent for the years 1942 through 1944.

Later an effort was made to have it judicially declared to be tax exempt for those years because it was alleged to have been in use for educational and religious purposes. It was in fact leased to the International Pentecostal Assemblies, a Georgia corporation, whose general secretary, in direct charge of the property, testified it was used as a theological school for the training of missionaries and ministers. The lease required the lessee to expend \$500 a year on upkeep and repairs and to pay any taxes levied or, in lieu thereof, to expend at least another \$500 on repairs, thus making his obligation at least \$1000 a year. While this was apparently a modest rental, it was more than nominal, and in view of all the circumstances it may perhaps have been "all the market would bear."

The three justices of the Wyoming supreme court concurred in an exhaustive opinion concluding that the property was taxable against the owner. Many cases from other jurisdictions hold that lands of a noncharitable own-

er, leased and occupied for school or other nonprofit purposes, are not exempt. When there is a substantial rental paid, the real property is actually in use for private profit, though occupied by a charitable agency.⁷

STATE UNEMPLOYMENT TAX

The upshot of the foregoing cases is that the courts are not disposed to add tax burdens to bona fide nonprofit educational enterprises but are keen to detect and defeat any subterfuge whereby advantage accrues to private financial interests under the guise of a charitable undertaking.

The same principle is further illustrated in an Illinois decision holding the American Medical Association liable for the state unemployment compensation tax, thereby casting no aspersions on the association but simply making a clean distinction between charitable and noncharitable activities. The association, says the court, does not qualify as a corporation "organized and operated exclusively for charitable, scientific, . . . or educational purposes, . . . no part of the net earnings of which inures to the benefit of any private shareholder or individual," because it "devotes a substantial portion of its efforts and of its income toward protecting and furthering economic benefits to the individual members of the association."

Various rules and publications of the association actively disparage reduction of fees and advocate scaling of fees according to patients' income status, thus "promoting the same objects as the rules of trade associations, labor unions and the like"; and publications on fee collecting based on technics used by commercial collection agencies were said to evidence activity not unlike that of a retail merchants' association.⁸

Although the decisions of the courts in varying circumstances are often close and difficult, the principle of tax exemption for bona fide nonprofit educational enterprises is as strong as ever and the institution or agency operated exclusively in the public interest has little to fear from the tax collector.

⁷Commissioners of Cambria Park v. Board of County Commissioners of Weston County et al., (Wyo.), 174 P. 2d 402 (1946).

⁸American Medical Association v. Board of Review of Department of Labor of Illinois, 392 Ill. 614, 63 N. E. 2d 350 (1946).

QUESTIONS AND ANSWERS

Classifying Endowment Funds

Question: I am interested in the problem of classifying endowment funds invested in residence properties occupied by faculty members. Are they better treated as investments in real estate or as advances to plant funds or, perhaps, to current funds? Does it matter from the point of view of tax exemption? Should a rental or interest charge be made from current funds to endowment funds? Another problem concerns the treatment of income from such residences. Is it important to stipulate a deduction from salary rather than a rental? Is there any harm in crediting such deductions or rentals directly to the operation of the property?—C.T.R., Ohio.

ANSWER: The question is involved and has many ramifications. Most authorities agree that endowment funds should not be invested in residence properties for faculties. If they are so invested, however, they should be treated as real estate investments of endowment funds. An income account should be credited with the rentals and an expenditure account should bear all expenses that would usually be charged to business property. The net income should be credited to investment income.

The question of property tax exemption is one that would have to be decided after a review of local conditions. From the point of view of the professor, he may be receiving a house at a nominal rental. If the property is operated at a loss, the college should raise the rent. From an income tax angle, the professor's salary is equal to his cash salary plus the true rental value of the house. It is better, therefore, to show his gross salary at the true figure. The collection of rent is facilitated by a salary deduction procedure.—J. HARVEY CAIN, *acting administrator, Board of Higher Education, New York City.*

In-Service Training

Question: What type of in-service training is most nearly adequate for new administrative staff employees, particularly where the size of the institution does not warrant a personnel office as such?—M.S., Calif.

ANSWER: I do not believe that any formal plan of training need be set up for new members of the administrative staff of a small institution. Certainly new employees must be told

what the policies of the institution are and they will need to know how the institution operates. They should meet other members of the staff immediately and join group activities, such as conferences used to disseminate information and policies.

A training program conducted by members of the administrative staff by means of conference groups is a sensible method of training both old and new employees. Information on how to conduct such conferences is easily obtainable from current literature on training problems in industry. Such training, with some modification, is applicable to university administration.—GLADYS McCAFFERTY, *director of personnel relations, Wadsworth House, Harvard University.*

Filing of Collection Letters

Question: I am interested in a simple filing system to support a series of collection letters which we send out in collecting old accounts.—E.B.P., W. Va.

ANSWER: It would appear that a standard filing cabinet, letter size, for the alphabetical filing of the correspondence involved would adequately meet the requirements of this project.—RALPH J. WATTS, *business manager, Lawrence College.*

Who Runs Union Food Service?

Question: Should the food service facilities of the college union be under the direction of the college union director or under the supervision of the food service director for the college?—H.K.E., Ohio.

ANSWER: Organizational relationships between union dining services and other university departments must be determined by local conditions but the trend appears to be to bring the dining units under the single direction of the union management itself. The dining and social functions of the union are so closely interlocked that it is awkward when the authority and responsibilities for their direction are divided.

When a union director does not have the union dining service under his direction, he is in about the same position as an athletic director who has nothing to say about the appointment of the football coach. The suc-

cess of the football program can make or break the department budget (even the department reputation). Similarly, food service can make or break the union budget and reputation since it is the main financial support of most unions and affects more people personally and importantly every day than does anything else that happens in the union.

Although someone else may manage the food service the union cannot avoid the impact of the results financially and in terms of the attitude of patrons. So far as most customers are concerned, it is "the union food service."

Under divided control in the building there are also practical difficulties such as whether dining or social needs for a multiple purpose room will have priority on a given occasion; how to arrange joint housekeeping and maintenance; how to allocate overhead costs; how to avoid friction between two sets of employees with divergent lines of responsibility, and so on through a long list.—PORTER BUTTS, *director, University of Wisconsin Union.*

Minimum Space per Student

Question: What is considered to be the minimum amount of classroom, office and laboratory space required per university student?—A.W.P., Wis.

ANSWER: To be answered intelligently the question would have to be reduced to more specific terms. The minimum number of square feet per student needed for a classroom would be about 17 square feet per student in a classroom for 20, and 11 square feet per student in a classroom for 100. I do not see how such a rule could be used to apply to offices as office size depends entirely on the office function. The same is true for laboratory space. For instance, a physics laboratory of 1000 square feet could accommodate more students than a mechanical engineering laboratory of the same size. Function would again determine space requirements.—HENRY K. KAMPHOFNER, *professor of architecture, University of Oklahoma.*

THE ROVING REPORTER

Worth Its Weight in Time

Don Stevens operations manager of the Memorial Union at Iowa State College, had a problem on his hands. The union was taking in so much money as small denomination credit coupons that the auditing staff could not count it fast enough to keep up with its other work.

The union sells coupon books at a 10 per cent discount to members. These books contain \$5 worth of tickets in 25, 10, five and one cent denominations and are good for nearly everything in the union.

The five and one cent tickets gave the most trouble since more than 2000 were taken in at dinner alone. As a solution to his problem, Stevens hit upon the idea of weighing these smaller denominations instead of counting them. The number of tickets to equal 100 grams in weight was easily determined by a little experimenting. In this case 370 five cent tickets or 380 one cent tickets were found to weigh 100 grams, the difference owing to their being printed on paper stock of different weights.

Weighing all the tickets for a day's business requires approximately an hour and a half; counting, four hours and a half. Stevens estimates a maximum discrepancy of about 50 cents in \$100, or approximately 0.5 per cent. Over a period of several days' business, however, this discrepancy will average out to a much smaller figure.

The same method could be applied to save counting theater tickets, bus tokens or other mediums of exchange not requiring absolute accuracy. All that is necessary is to have an accurate scale and to compute the number of tickets or tokens in some convenient unit of weight. The unit chosen will depend upon the accuracy desired, the size of each ticket or token and the quantity to be measured.—K. O. ANDERSON.

It Pays to Loaf

Charles Allen Smart, author and writer-in-residence at Ohio University, believes college students should do some "sheer loafing and wandering

WEIGHING
credit coupons
instead of counting
them saves
the Iowa State
College Memorial
Union three
hours a day. The
simplicity of the
operation is demonstrated by Mrs.
M. W. Bullock,
assistant auditor.



around" while attaining scholarship. In contrast to the usual idea that high grades are made only by constant study, the author of the best seller "R.F.D." also advises "unplanned reading and plenty of plain curiosity." "You will find that having been a sound scholar will probably pay you solid dividends in prestige and cash when you get a job," the Harvard University graduate told the students. "But scholarships, at least in the early stages of an economic career, may prove to be a definite though not fatal handicap," he cautioned, explaining that the "pursuit of truth and beauty has little to do with business on the lower levels, at least."

Students should take nothing for granted in the classroom and dispute conclusions if they are not proved to them. Mr. Smart urged students to "speak up more freely to members of the faculty, the deans and even the president."

Education Costs, Farm Prices

While agricultural prices have increased as much as sixfold since 1932, higher education costs have gone up on a much smaller scale, a study at the University of North Dakota reveals.

U.N.D.'s total appropriation for the 1931-32 biennium was \$1,170,897,

while now the school is asking \$1,966,726, roughly twice as much. No buildings funds were included in 1931-32, while current requests include more than a million for new structures.

Among factors justifying the boost is the vast increase in farm values. For instance, it took 303 bushels of wheat to pay a \$100 debt in 1932, while today 53 bushels will do the same trick. Similarly, it took 218 bushels of potatoes to bring \$100 in 1932; today 50 bushels add up to \$100. In addition, farm yields have been much bigger and better than in '32.

Students Help Out

Abilities developed in industrial arts classes have been utilized by students of the University of Georgia College of Education to transform a dark basement hallway in Peabody Hall into a lounge.

With the aid of Instructor Lamar Barfoot, the students made furniture and fixtures in the industrial arts shop and repainted the woodwork.

The planning, construction and painting were carried out by a group of teacher training students as a means of obtaining experience in the use and arrangement of relatively inexpensive items that may be employed in any Georgia school.

NEWS

Construction Needs Total \$700,000,000 . . . Bill Seeks Federal Funds for Permanent Construction . . . Three Bills Ask Funds to Complete Temporary Housing . . . W. A. A. Changes for Acquiring Industrial Real Property

Federal Aid Is Proposed for Permanent Construction

A bill, S. 971, authorizing \$250,000,000 for grants-in-aid to colleges and universities for permanent construction was introduced on March 21 by Senator Aiken.

Provisions of the bill specifically limit the grants-in-aid to educational facilities required as a result of veteran enrollment in nonprofit institutions of higher education, including junior colleges and normal schools.

Another feature of the bill which removes it from any establishment of a long range policy is the fact that the funds appropriated shall not be available for obligation for new projects after June 30, 1948, or for projects which are not actually begun by Dec. 31, 1948, and completed in sufficient time for the facilities to be available to veterans. The proportion of the federal government's grant shall not exceed 50 per cent of the cost of the educational facilities to the institution.

Three fourths of all funds appropriated shall be apportioned by F.W.A. for allotment to colleges in proportion to the total number of veterans in each state certified by V.A. on or before March 31, 1947, as eligible for education and training. The remainder shall be apportioned at the discretion of the administrator. The term "state" includes the District of Columbia and any territory or possession of the United States.

The need for facilities must be certified by the U. S. commissioner of education. The bill precludes any federal department, agency or officer from exercising supervision or control over the institution to which a grant-in-aid is made.

W.A.A. Changes Rules on Real Property

To provide a more concrete basis for future disposition of government-owned real property, W.A.A. has discontinued the priority status of nonprofit institutions, including schools and colleges, in acquiring real property classified as "industrial." These institutions will continue, however, to receive a preferential status in acquiring nonindustrial real property.

This change is incorporated in a new Regulation No. 5, and rescinds Regulations 10, 16, 18 and 20, and Special Order No. 19. Under the new provisions nonprofit institutions may acquire industrial real property upon application, but their request will be considered not on the basis of priority but "in light of the purpose to which the property will be put as compared with the economic, industrial uses, if any, of such property."

The regulation requires the publication of a deadline date before which proposals for acquisition must be received. It stipulates also that all priority claimants shall be charged the "fair value" of the property, except in the case of former owners or owner-tenants. Data submitted in justification of acquisition will be confidential.

Control on Soil Pipe Continued

To help the producers of cast-iron soil pipe for veterans' housing, C.P.A. has announced that continued assistance in obtaining pig iron will be given only to producers of this type of soil pipe and fittings. Since March 31, government allocation of pig iron has been discontinued for all items except this. As far as pig iron is concerned, cast-iron soil pipe and fittings are at present the chief bottlenecks in the Veterans' Emergency Housing Program.

Would Provide Funds to Complete Temporary Housing Under Contract

Three bills, S. 854, H.R. 2340 and H.R. 2780, have been introduced into the Congress to carry out President Truman's recommendation for an increase of \$50,000,000 in the appropriation to F.P.H.A. to permit it to complete present contracts with educational institutions and municipalities for temporary housing.

The legislation, if passed and if the appropriation is made, would give F.P.H.A. funds to complete all housing units now under contract, including those suspended since last December 14 and those previously canceled.

The proposed legislation also provides for reimbursement to educational institutions and other public bodies for expenditure of their own funds for the completion of units which would otherwise have been canceled and also for the cost of utility and other site work performed by them in connection with veterans' temporary housing on a reimbursable basis.

RR Ratings Equivalent to Former CC Ratings

Although PR 35 of the Office of Temporary Controls (C.P.A.) stated that the new RR ratings established on March 15 were equivalent to the former CC priorities ratings, the questioning of such equivalency prompted the issuance on March 25 of Regulation 1 to PR 35.

This interpretation restates the equivalency value of the new RR ratings on priority for purchase of essential items needed to maintain or increase production of critically scarce building materials. These items were listed in Direction 5 to PR 3 and Direction 6 to PR 20.

F.W.A. Acts to Keep Surplus Property Moving to Colleges

With the ending on March 31 of the war powers under which an executive order gave colleges with veterans enrolled a priority on surplus property, the Federal Works Agency instructed its field staff to contact educational institutions desiring surplus property under Public Law 697.

This law, which authorizes F.W.A. to act as a disposal agency for surplus property to educational institutions, was passed during the summer of 1946. Although the executive order supplemented the authority of F.W.A., the agency also exercised its rights under P.L. 697 to procure and donate surplus property to schools and colleges if the need was based on veteran enrollment and certified by the U. S. Office of Education.

This farsighted policy of F.W.A. and the promptness of its action on March 31 will assure the continuance of the flow of surplus property to the institutions which apply for it under P.L. 697. Surplus may be donated and thus the institution may avoid the payment of even the 5 per cent of "fair price" required under the war powers regulations. F.W.A. is also free from the priority provisions of the Surplus Property Act of 1944, the criterion being that of need based on veteran enrollments.

Institutions will be equally foresighted if they also move promptly to make their applications for additional surplus property needed. Such application should be made to the U. S. Office of Education representative in the F.W.A. regional office.

W.A.A. Takes Over Maritime Disposal

Surplus property disposal activities of the Maritime Commission, with the exception of ships and small vessels, were transferred to W.A.A. on April 5. It was estimated that the total reported cost of the inventory transferred would not exceed \$20,000,000, since approximately 85 per cent of the marine material declared to the Maritime Commission has been sold.

Items included in the transfer are marine engines, ship's turbines, winches, windlasses, navigation equipment and life saving equipment.

Would Transfer Temporary Housing to Colleges

Several bills have been introduced to transfer title of temporary housing erected by the federal government to educational institutions upon the request of the institution. This legislation, if enacted, would also free the buildings from the present requirement that they be demolished within two years after the official termination of the war.

Other bills would release them from the requirement of demolition without transfer of title. Still other proposed legislation would give to states and their political subdivisions, which would include public schools and colleges, all of the educational and recreational facilities erected by the federal government during the war.

Civil Service Change May Aid Public Colleges

A regulation of the United States Civil Service Commission permits an employee to leave his present government position for one year and be reinstated without loss in status, provided, while on leave, he is in the service of "an international governmental organization or of a territorial, state, county, municipal or foreign government." This regulation may provide a source of faculty personnel for publicly controlled colleges and universities.

The regulation also permits an employee to leave his government position for a maximum of one year to take a "training course in any educational institution of recognized standing when the commission finds that he has acquired valuable training or experience for the position to be filled."

Enrollment in Negro Colleges at New High

Enrollment in Negro colleges and universities in the nation has reached a new peak for the second consecutive year, according to Dr. Martin D. Jenkins of the department of education, Howard University.

Dr. Jenkins estimated more than 63,000 students are enrolled in 115 colleges and universities; returning veterans constitute 30 per cent of the enrollment. This is only 3 per cent of the total college enrollment.

Many New Bills for Liberalizing Veterans' Benefits

Bills to liberalize the benefit provisions of Public Laws 16 and 346 continue to be introduced into Congress almost daily.

Two new proposals have been made regarding subsistence payments. One, S. 687, would authorize an annual adjustment of subsistence payments for disabled veterans based upon changes in the cost of living as determined by the bureau of labor statistics.

The other, H.R. 2779, would authorize V.A. to make loans to veteran students enrolled under the G.I. bill. Such loans would be a maximum of \$25 per month for a single veteran; \$35 per month if married or with a dependent, and "if married and with children," \$20 additional per month for the first child, \$15 for each additional child. The maximum interest rate would be 3 per cent. The veteran need not begin paying back the loan until five years after the termination of his course and he may spread his payments over twice the number of months during which he received the loan since only 50 per cent of the monthly loan need be paid back each month.

The house bill is being given favorable consideration by the committee on veterans' affairs as it largely eliminates the economic factor as a cause of veterans dropping out of school or college yet could be done with only a temporary outlay of federal funds.

Other recent bills include: complete removal of the \$175 and \$200 ceiling; addition of brothers and sisters as a basis of calculating subsistence if they are dependents of the veterans; authorization for immediate cashing of bonds issued in lieu of terminal leave pay; inclusion of terminal leave time in the time-entitlement of the veterans for education and training; provision for a loan not to exceed \$100 to any veteran beginning his education or training under Public Law 16; the increase to \$1900 of the amount which federal government will pay for an automobile for certain disabled veterans, and addition of loss or loss of use of one or both arms, and impairment of vision of both eyes to the present requirement of loss or loss of use of one or both legs above the

ankle; and extension of benefits provided for discharged military personnel to enlisted men of the army, navy, marine corps or coast guard who were recalled from retirement or reserve status and were disabled in World War II.

Another extension of the educational provisions of the G.I. bill is H.R. 2317 which would authorize the inclusion of institutions' on-farm training for veterans. Under this amendment the veteran must attend at least 200 hours a year in group instruction in agriculture and related subjects and have not less than 50 hours of instruction on the farm which he is operating or on which he is employed, with at least two visits each month by the instructor.

Carnegie Aid to Negro Colleges for Better Teaching

Twelve Negro colleges and universities in five southern states have been added to the five year program designed to vitalize teaching started in 1946 by the Carnegie Foundation for the Advancement of Teaching. This expansion brings to 45 the total number of southern colleges and universities participating in the project.

The program in the Negro institutions will be financed jointly by a grant of \$215,000 and by contributions of \$60,000 from the cooperating colleges, making available a total of \$275,000. It parallels the previous grant of \$700,000 to 33 other southern institutions which have added \$200,000. Thus the overall investment in this present five year program in the South will be \$1,175,000, of which the 45 participating colleges will provide \$260,000 and the foundation will contribute \$915,000. Funds to cover the foundation's appropriations have been made available to it by the Carnegie Corporation of New York.

George Washington U. Expands

Dr. Cloyd Heck Marvin, president of George Washington University, has announced a program of expansion that will cost approximately \$30,000,000. Included in this program will be an enlargement of the present site in Washington, D. C., and the construction of a new law school building, additional laboratory and classroom structures and more dormitories.

Needed Facilities Will Cost \$700,000,000, N.E.A. Conference Agrees

To meet the instructional needs of the 3,000,000 students expected in colleges and universities by 1950, immediate provision for 70,000,000 square feet of additional classroom and laboratory facilities must be made available, according to those attending the national conference on higher education sponsored by the National Education Association in Chicago, March 31 to April 3.

Four hundred and eighty-four representatives from colleges and universities from 45 states and the District of Columbia attended the work conference.

At present costs, an estimated \$700,000,000 will be required for construction of the necessary facilities. It was suggested that the colleges provide half of this amount, with the federal government providing the remainder.

The group studying building facilities recommended that further federal support not be given at this time for residential facilities beyond those for which commitments have been made; for the completion of these a \$50,000,000 appropriation is now pending in Congress.

One work conference study revealed that for the current year the student and his family are contributing 67.8 per cent of the total cost of higher education, with 11.5 per cent being provided by philanthropy and other funds, and 20.7 per cent by public funds, state or federal. By 1960, it was estimated that state and federal funds will be meeting 29.7 per cent of the total cost, with private philanthropy providing only 7.6 per cent and the student and his family furnishing 62.7 per cent. This indicates that state or federal support of higher education would be increased by almost 10 per cent.

It was recommended that in order to assure a high quality of instruction, a salary of at least \$3000 for the academic year will be paid to all beginning instructors who possess the master's degree as minimum educational qualifications.

In regard to faculty retirement provisions, it was recommended that retirement plans demand the establish-

ment of a 15 to 20 per cent basis in place of the standard 10 per cent basis generally prevailing before the war. It was also recommended that the amount of group insurance available to faculty members should be increased by 50 per cent above the pre-war amount.

To approach equalization of educational opportunity, the study group on this problem recommended that assistance be provided to the states equal to the difference between 3.5 per cent of the state income for the preceding fiscal year and the amount determined by the number of children from 5 to 19 years multiplied by a minimum of \$80. Such funds as are allotted to each state to bring the school income per student to a minimum of \$80 would be placed with the state treasury and be distributed to the various school units on a plan devised by the state board of education or corresponding legal agency, in accordance with the fiscal regulations of the Congress and based upon the counsel of the broad educational interests of each state.

The general trend noted at the conference was that state and federal support of higher education would be necessary to a larger degree than is evident at present if the demands for those seeking a college education are to be met. How to obtain this support without relinquishing the institution's educational freedom was the problem that concerned many of those present.

\$200 Rise in Tuition at Mount Holyoke

Increases in the cost of living have compelled a \$200 rise in tuition fees at Mount Holyoke College for next year, President Roswell Gray Ham announces. The increase brings to \$1400 the annual fee for board, room and tuition for each student enrolled in 1947-48.

Pointing out that the \$100 increase in rates which went into effect last September had not solved the financial difficulties created by rising prices, President Ham reported "a disturbing deficit" with no immediate alleviation in prospect except the raising of fees. During the last year "every economy has been practiced except the lowering of standards and depletion of our plant," he said.

Gives Court Decisions Affecting Colleges

The Carnegie Foundation for the Advancement of Teaching has recently published "The Colleges and the Courts," a review of recent decisions of importance to higher education. While the report is a compendium of court decisions throughout the United States, the cases are cited as illustrations of basic trends and phrased in nonlegal language.

Part I summarizes the decisions regarding college and university personnel, including: the right to attend college; admission, expulsion and credentials of students; trust funds for student aid; academic freedom, salary and appointment of faculty and administrative staff, and the compatibility of membership of the governing boards with other public offices.

Other sections of the report treat the sphere of state and municipal institutions in the state government; privileges, powers and liabilities of privately controlled institutions; fiscal relationships with governmental units, and financial support from private sources.

Postal Rate Increases Would Affect Colleges

Legislation has been introduced which would increase all postal rates except those on regular first class mail. The bill, H.R. 2408, has been referred to the committee on post office and civil service and hearings were begun on March 13.

Provisions that would most affect educational institutions are those pertaining to second class postal rates and the mailing of catalogs and books. Second class rates are increased from the present 1½ cents to 2½ cents a pound on newspapers and magazines. In addition to the new pound rates, the proposed law adds a further charge of ¼ cent for each piece (i.e. individually addressed) mailed second class except those distributed through local delivery.

Catalogs and books mailed by educational institutions are subject to the same increase as those distributed by commercial organizations except that the rate is reduced on "books, consisting wholly of reading matter and containing no advertising matter other than incidental announcements of books, when sent by public libraries,

organizations or associations not organized for profit as a service to county or other unit libraries or as a loan to readers or when returned by the latter libraries or readers to such public libraries, organizations or associations."

Amendments Proposed to Surplus Property Act

More than a dozen bills have been introduced into this Congress to amend the Surplus Property Act of 1944.

Those of most interest to educational institutions include: requiring individual authorization by Congress for disposal of any plant which cost the government \$1,000,000 or more; giving first priority for purchase of any surplus from the civilian defense activities to the local community or the state in which it is located; changing the priority status of small business, and authorizing the creation of an agency to supervise and control the distribution of surplus property among the tax exempt and nonprofit educational institutions and schools in the District of Columbia.

There seems to be general agreement that changes in policies of W.A.A. are proving more beneficial to educational institutions than if efforts were made to modify the basic law.

Audio-Visual Aids Report Is Issued

A comprehensive description and an analysis of audio-visual aids used in the armed services that have implications for civilian education have just been released by the Commission on the Implications of Armed Services Educational Programs of the American Council on Education.

The report reveals that the armed forces developed an effective training program through the use of a wide variety of aids from simple devices to mockups and the Link trainer. Through close cooperation with the army and navy training divisions and representatives of educational organizations, these programs have been evaluated to determine what types of visual and auditory aids may be useful in civilian education. The appraisal was made not only in terms of materials of instruction but also in terms of procedures.

No Subversive Activity on Wayne University Campus, Says President

The Detroit board of education recently adopted as official policy a formal statement issued by Dr. David D. Henry, president of Wayne University, in which he specifically denied existence of subversive activity on the Wayne University campus. The statement was made as the result of recent public discussion of alleged subversive activity in the institutions of higher learning in Michigan and in the nation.

"The university, as a public institution, requires no information from its students as to their political and religious beliefs," Dr. Henry stated. "We have acted on the assumption that the university has no right to differentiate among American citizens on the basis of political beliefs insofar as admission to the university is concerned.

"I, personally, do not like Communism," Dr. Henry continued; "however, the university policy on admission of student groups and students must be based upon the rights of American citizens, not upon my opinion of them."

Dr. Henry stated that city and state police and the F.B.I. have been asked to report any information they have at any time in appraising the status of students at Wayne University. As a result, the American Youth for Democracy, named by the F.B.I. as a Communist group, has since been banned because the chapter refused to disassociate itself from state and national A.Y.D. groups.

Would Extend Social Security Coverage

Two bills have been introduced into the Congress which would affect the salaries of all employees of educational institutions.

H.R. 1992 would change the present Social Security Act to provide coverage for all employees of "religious, charitable, scientific, literary and educational institutions" not operating for profit. It would include such employees in both its unemployment and retirement insurance provisions.

The other bill, H.R. 2037, would exclude the same group of employees from the requirement of the withholding tax at the source of income.

Taft Bill Would End Vet Time Entitlement

Senator Taft has introduced S. 977 which, if enacted, would end on March 31, 1947, the time during which military personnel now in the armed forces could accumulate time entitlement for education and training. Public Laws 16 and 346 both use the term "termination of hostilities" as the terminal for acquiring eligibility for benefits, but neither the Congress nor the President has as yet declared this termination.

The bill would have the further effect of barring from the educational, unemployment and loan benefits those men who had enlisted during the ninety days prior to March 31 since a minimum of ninety days of active duty is required to be eligible for G.I. benefits. The army has used the educational provisions for veterans as one of its appeals for enlistment and such legislation would invalidate this incentive.

Although there appears little agitation to push the bill, it is significant that there is some concern regarding the seemingly indefinite extension of the period during which eligibility for training and education is established. It is the only bill thus far introduced into this Congress which would restrict rather than liberalize benefits.

Pomona Alumni Plan Memorial

One hundred Pomona College alumni men recently met in Los Angeles for a "kick-off dinner" initiating a personalized campaign to raise funds for a proposed memorial men's gymnasium. The proposed memorial, according to Allen F. Hawley, director of alumni activities, will cost \$300,000 and will be dedicated to the 74 Pomona College alumni who died in World War II. Donations of \$45,000 have already been received.

Adrian Given House as Memorial

Adrian College has received a gift of approximately \$30,000 for construction of a building to be named "Cornelius House" in memory of a former professor of Greek and Latin. The new building is to be leased to Alpha Tau Omega fraternity; income therefrom will be used for scholarships and student loans.

Nonacademic Personnel Directors Will Meet

Plans have been announced by Donald E. Dickason, director of the office of nonacademic personnel at the University of Illinois, for the first annual meeting of personnel directors of American colleges and universities in Chicago on May 6 and 7. Sessions are to be held at the Edgewater Beach Hotel.

Subjects for discussion include union and labor relations, employee training, salary and wage problems, job evaluation, merit rating and improvement of office practice.

Sessions of the personnel directors' conference will be held immediately preceding the annual convention of the Central Association of College and University Business Officers at the same hotel May 8 and 9.

Russell Sage Will Continue Men's Work

Russell Sage College plans to continue its men's division for a second year beginning next fall, President Helen McKinstry announced recently.

Classes will be conducted for a new group of students who will take freshman work. The men who started their college work last September as an emergency measure will be transferring to other colleges to complete study for their degrees.

In special cases in which transfer is being delayed, students may be given an opportunity to do a second year of work. This will be discouraged generally because of the difficulties involved in a student transferring to another college as a full junior.

Names in the News



Dr. Merrill J. Holmes has been appointed president of Illinois Wesleyan University to succeed the late Dr. W. E. Shaw. Vice president of the university for the last six years, President Holmes has served also as endowment treasurer since the death of Oscar J. Hoose, former board member, last May.

John B. Goodwin, business manager of the City College of New York, resigned recently to accept appointment as comptroller of Creighton University. His new appointment was effective April 1.

J. R. Neel, formerly assistant purchasing agent of Indiana University on the Bloomington campus, has been appointed purchasing agent at the Indiana University Medical Center in Indianapolis. Prior to his university connection, Mr. Neel had been associated for ten years with General Motors Corporation in its radio division at Kokomo, Ind., and its electromotive division at LaGrange, Ill.



William H. Cobb was recently elected vice president of Teachers Insurance and Annuity Association of America after serving for some time as assistant vice president.

He was associated with the University of Iowa for nineteen years, serving successively as auditor, comptroller, business manager and secretary and treasurer of the board in control of athletics. Mr. Cobb is a former president of the Central Association of College and University Business Officers.

Dr. Eugene Farley, Bucknell University Junior College, was elected president of the American Association of Junior Colleges at the twenty-seventh annual convention of the association which was held recently in St. Louis.

The Rev. James A. W. Reeves, president of Seton Hill College, died March 7. He had served as president of the college since 1931 and was 55 years of age at the time of his death.

Harold L. Cruikshank has been appointed headmaster of University School, Cleveland, to succeed Harry A. Peters. Mr. Cruikshank is director of the Wilkes-Barre Day School and will accept his new appointment in August on Dr. Peters' retirement after thirty-nine years of service.

Maj. Gen. Ray W. Barker has been appointed president of Manlius School in New York City to succeed the late Lt. Col. D. Percy McCarthy. Gen. Barker was formerly commanding

DIRECTORY OF ASSOCIATIONS

Associations of College and University Business Officers

Central Association

President: C. D. Simmons, University of Texas; vice president: Herbert Watkins, University of Michigan; secretary-treasurer: T. E. Blackwell, Washington University.
Executive Committee: A. W. Peterson, University of Wisconsin; Lawrence R. Lunden, University of Minnesota; H. H. Brooks, DePauw University; William B. Harrell, University of Chicago.
Convention: May 8-9, Chicago.

Eastern Association

President: R. C. Magrath, University of New Hampshire; vice president: George E. Van Dyke, Syracuse University; secretary-treasurer: Boardman Bump, Mount Holyoke College.
Executive Committee: Samuel F. Agnew, Western Reserve University; Morris Cochran, Brown University; J. G. Vann, North Carolina State College; Don C. Wheaton, Sweet Briar College; Ervin T. Brown, Rollins College.

Southern Association

President: W. Wilson Noyes, University System of Georgia; first vice president: George R. Kavanaugh, Berea College; second vice president: W. T. Ingram, Alabama Polytechnic Institute; third vice president: Howard MacGregor, Agnes Scott College; secretary-treasurer: Gerald D. Henderson, Vanderbilt University.
Executive Committee: Jamie Anthony, Georgia School of Technology; E. H. Fisher, Southeastern College; J. B. Paysinger, Columbia College; James F. Blair, Union College; C. B. Markham, Duke University.

Western Association

President: J. Orville Lindstrom, University of Oregon; vice president: William Norton, University of California; secretary-treasurer: K. B. Sauls, Brigham Young University.
Executive Committee: O. D. Garrison, University of Idaho, Southern Branch; Nelson A. Wahlstrom, University of Washington; Robert D. Fisher, University of Southern California.
Convention: April 27-29, San Francisco.

Association of Business Officers in Negro Colleges

President: G. Leon Netterville Jr., Southern University; vice president: Isiah Creswell, Fisk University; secretary: V. D. Johnston, Howard University; treasurer: Mark Birchette, Dillard University.
Executive Committee: Don A. Davis, Hampton Institute; Viola Means, South Carolina State College; L. H. Foster Sr., Virginia State College; W. A. Morgan, Bishop College.
Convention: May 11-13, Wiley College, Marshall, Tex.

Educational Buyers Association

President: James J. Ritterskamp Jr., Washington University; vice president:

Gerald D. Henderson, Vanderbilt University; vice president: Charles Hoff, University of Omaha; vice president: H. B. Bentsen, George Williams College; treasurer: Edward K. Taylor, Cornell University Medical College; executive secretary: Bert C. Ahrens.
Convention: May 1-3, Omaha, Neb.

Association of Superintendents of Buildings and Grounds of Universities and Colleges

President: L. F. Seaton, University of Nebraska; vice president: Paul H. Elleman, Ohio State University; secretary-treasurer: A. F. Gallistel, University of Wisconsin.
Executive Committee: L. F. Seaton, University of Nebraska; Paul H. Elleman, Ohio State University; A. F. Gallistel, University of Wisconsin; Henry E. Pearson, Indiana University; John J. Colgate, University of Pennsylvania.
Convention: May 12-14, Ohio State University, Columbus.

Association of College Unions

President: D. R. Matthews, University of Florida; vice president: Douglas O. Woodruff, University of Utah; secretary-treasurer: Edgar Whiting, Cornell University; editor: Porter Butts, University of Wisconsin.

American College Public Relations Association

President: Harold K. Schellenger, Ohio State University; vice presidents: research, E. Ross Bartley, Indiana University; membership, W. Henry Johnston, Colgate University; regions, Horace Renegar, Tulane University; radio, Elmer G. Sulzer, University of Kentucky; athletics, William H. Wranek, University of Virginia; secretary-treasurer: Max E. Hannum, Franklin and Marshall.
Publications: editor, Lorena Drummond, Southern Illinois Normal University; associate editor, Paul Faris, Hendrix College; business manager, Roy K. Wilson, National Education Association.
Convention: May 14-17, Coronado Hotel, St. Louis.

National Association of College Stores

President: Norman M. Gay, Boston University Book Stores; vice president: A. W. Littlefield, Barnes and Noble, Inc., New York City; immediate past president: E. C. Rafter, University Cooperative Society, Austin, Tex.; directors: Fred Davis, The Citadel Canteen, Charleston, S. C.; John H. Jenkins, St. Louis University Book Stores, St. Louis; H. H. Hays, Berea College Store, Berea, Ky.; George Racine, Student Book Exchange, Evanston, Ill.; manufacturer's representative: Charles Lofgren, Sanford Ink Co., Chicago; executive secretary: Russell Reynolds, 189 W. Madison St., Chicago.
Convention: April 27-30, Hotel Statler, Cleveland.

general of the American zone of occupation in Berlin.

A. F. Nader has been appointed to succeed Dorothy E. Blair as director of public relations at Marietta College when the latter resigns from the directorship June 9.

Marvin J. Russell has been appointed director of information for Colorado A & M College. He has been editor for the college agricultural experiment station at Fort Collins for seven years and recently returned from two years' service with the navy.

Phyllis Deveneau, formerly of the University of New Hampshire news bureau, has been appointed director of public information at New Jersey College for Women, Rutgers University. She succeeds Mrs. George C. Mark.

Harold K. Schellenger, director of public relations at Ohio State University and president of the American College Public Relations Association, has resigned to accept a position as director of the public relations department of Byer & Bowman advertising agency, Columbus, Ohio. His resignation became effective April 1.



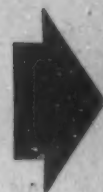
Dr. Edward J. Walsh, C.M., president emeritus of St. John's University in Brooklyn, died March 23 at Mobile, Ala., as the result of a heart ailment. For

reasons of health he had resigned as president of St. John's University in 1942. Earlier in his career Father Walsh had been appointed president of Niagara University at the age of 31 which, at that time, made him the youngest university president in the United States.

Dr. Donald DuShane, president of the National Education Association in 1940-41, died March 10 in Washington, D. C. He was 62 years of age. Dr. DuShane had served since 1941 as executive secretary of the National Commission for the Defense of Democracy Through Education.

Dr. Walter Patten, president of Louisburg College, died March 8. Head of the college since 1939, he at one time served as president of the board of missions of the North Carolina Conference of the Methodist Church.

PRODUCT INFORMATION



Information on the materials, equipment and supplies with which an institution is built, operated and maintained and which are used in its various departments is of vital interest to those charged with the business operation. College and University Business recognizes the importance of this information and believes it has rendered a real service by grouping manufacturers' announcements and new product descriptions into a separate part of the magazine. We believe this is an infinitely better plan than to mix such information through the editorial pages where it becomes obscure and confusing.

You will find manufacturers' advertisements from pages 45 through 72. Pages 68-71 contain descriptions of new products and items of interest. Further details on any product advertised or described may be obtained without obligation and with a minimum of effort by use of the postcard below.

INDEX TO ADVERTISERS ON FOLLOWING PAGE

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Index to Products Advertised



Key	Page	Key	Page
194 American Mat Corporation Rubber Link Matting.....	56	217 Maas Organ Company Carillons	62
195 Ampro Corporation Strip Film Projector.....	61	218 Meyer and Co., Theodore Blankets	62
196 Arketex Ceramic Corp. Structural Tile.....	49	219 National Chemical & Mfg. Co. Paint	62
197 Automatic Pencil Sharpener Co. Pencil Sharpeners.....	60	220 National Lock Company Locks	58
198 Balfour Company, L. G. Memorial Plaques.....	60	221 Neumade Products Corp. Film Accessories.....	66
199 Bay West Paper Company Paper Towels.....	48	222 Pittsburgh-Corning Corp. Insulation	53
200 Bell & Howell Company Movie Projectors.....	57	223 Remington Rand, Inc. Visible Records System.....	59
201 Berman Chemical Company Swimming Pool Cleaner.....	50	224 REX-O-graph, Inc. Duplicator	56
202 Blank & Co., Inc., Frederic Wall Covering.....	47	225 Schulerich Electronics, Inc. Carillon Bells.....	66
203 Bradley Washfountain Co. Plumbing Equipment.....	54	226 Sexton & Company, John Institutional Food.....	4th cover
204 Carrom Industries, Inc. Institutional Furniture.....	72	227 Sherwin-Williams Co. Weed Killer.....	65
205 Clarin Mfg. Co. Folding Chairs.....	66	228 Sloan Valve Company Plush Valves.....	55
206 Clark Linen & Equip. Co. Lamps	56	229 Superior Coach Corp. Buses	51
207 Da-Lite Screen Co., Inc. Projection Screens	63	230 Vestal, Inc. Floor Maintenance.....	64
208 Dick Company, A. B. Duplicator	3rd cover	231 Victor Animatograph Corporation Movie Projector.....	45
209 Dolge Company, C. B. Gym Floor Finish.....	50	232 Wakefield Brass Co., F. W. Lighting Fixtures.....	46
210 Dudley Lock Corporation Locks	56	233 Weis Mfg. Co., Inc., Henry Cabinet Showers.....	64
211 Dunham Company, C. A. Heating System.....	62	234 West Disinfecting Company Sanitation Products.....	48
212 GoldE Manufacturing Co. Film Strip Projector.....	50	235 Weston Electrical Instru- ment Corp. Classroom Teaching Aids.....	54
213 Hamilton Mfg. Company Laboratory Equipment.....	52	236 Whirlwind Lawn Mower Company Power Lawn Mowers.....	50
214 Holt Manufacturing Co. Floor Maintenance Machine.....	58		
215 Huntington Laboratories, Inc. Liquid Soap.....	52		
216 McCray Refrigerator Co. Refrigerator	67		

Index to "What's New"

Pages 68-71

Key
179 American Wire Form Co. Uniform Hanger
180 Justifier Sales Company Margin Justifier for Typewriter
181 Dick Company, A. B. Cushion Sheet for Stencil
182 Kolograph Corporation 16 mm. Sound Projector
183 Allied Radic Corporation Catalog of Radio, Electronic Parts
184 Marman Products Co., Inc. All Purpose Pipe Leak Clamp
185 Barrett, H. J. Jeep for Janitor
186 Pittsburgh Plate Glass Co. Pittsburgh Data Sheet Handbook
187 Mayfair Industries Aerosol Gun for Insect Control
188 Dictograph Products, Inc. Fire Alarm System
189 Commercial Forms Corp. Continuous Forms for Punched Card Accounting Machines, Forms- Writing Typewriters
190 Continental Hospital Service, Inc. Nylon Tumblers
191 Rauland Corporation Electronic Intercom System
192 Eastman Kodak Company Slide Projector
193 Guth Company, Edwin F. Luminaire, Maintenance Tool

April, 1947

Please ask the manufacturers, indicated by the numbers I have circled, to send further literature and information provided there is no charge or obligation.

WHAT'S NEW			ADVERTISEMENTS							
179	184	189	194	200	206	212	217	222	227	232
180	185	190	195	201	207	213	218	223	228	233
181	186	191	196	202	208	214	219	224	229	234
182	187	192	197	203	209	215	220	225	230	235
183	188	193	198	204	210	216	221	226	231	236
			199	205	211					

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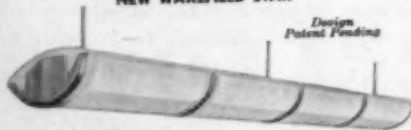
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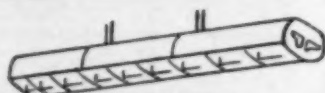
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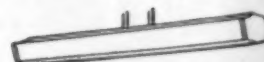
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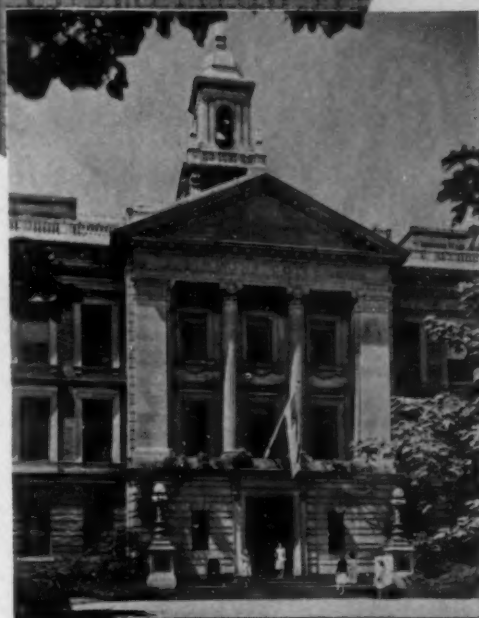
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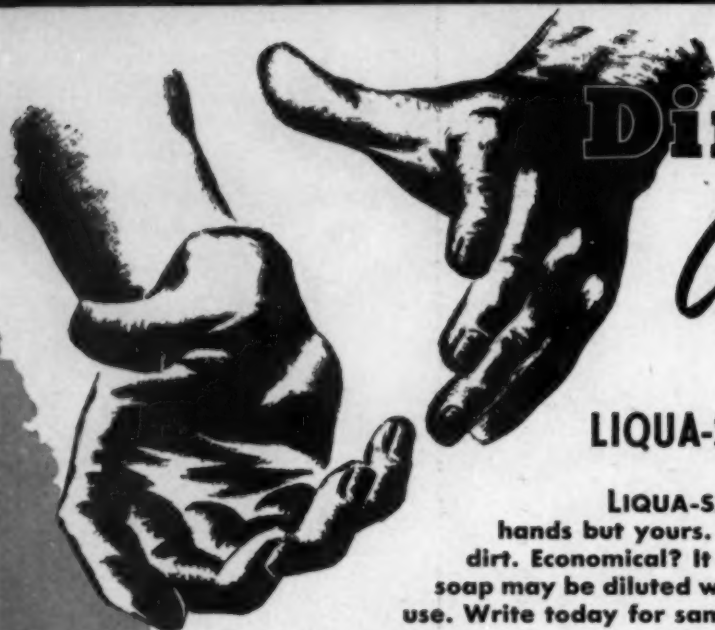


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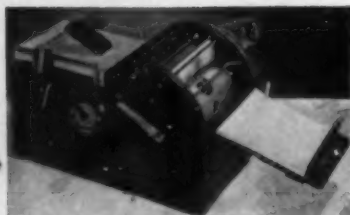
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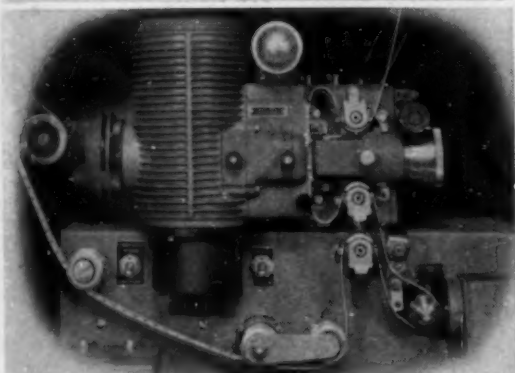
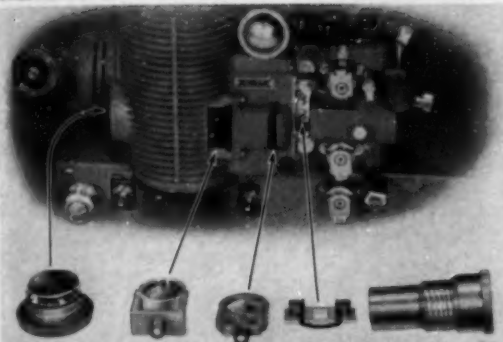
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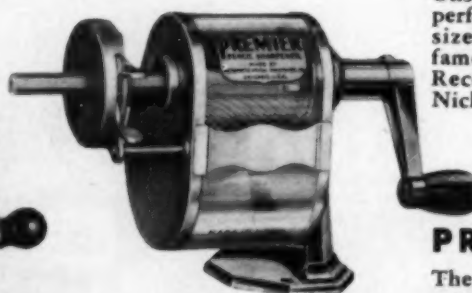
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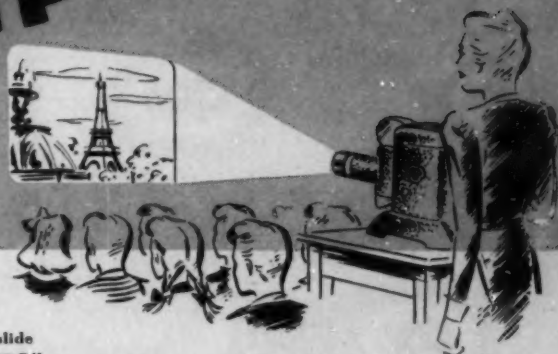
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The coordinated "System" control consists of control panel usually located in the boiler room, room resistance thermometer, heat balancer, selector and control valve.

● The Dunham Differential Vacuum Heating System performs with the accuracy and sureness of a well-trained team to maintain comfortable classroom, auditorium, office and dormitory temperatures, to fit individual room needs, automatically . . . no matter how rapidly atmospheric conditions change. Through the circulation of a continuous flow of steam, regulated at varying temperatures from 133° F. to 212° F., or higher, the Dunham System automatically compensates for weather changes in a few seconds to give you a truly care-free heating system. For more complete information on how the Dunham System can help reduce maintenance and fuel costs, write for Bulletin 631. C. A. DUNHAM COMPANY, 450 East Ohio Street, Chicago 11, Illinois. D447½D

DUNHAM HEATING MEANS
BETTER HEATING

BLANKETS



GLACIER

ALL WOOL — WHITE

with four colored stripes each end
72" x 90"

Whipped Ends

Write for sample . . . For immediate delivery

Now Available—Limited Quantities
Gymnasium Towels sizes 20 x 40
Write or wire today your requirements

THEODORE MAYER & CO.
329 W. Monroe Street Chicago, Illinois



LESSONS come to **LIFE...**



on the DA-LITE SCREEN!

Keener interest and better understanding are the natural results of *improved projection*, as made possible by Da-Lite Screens. For Da-Lite's extraordinary glass-beaded surface reflects "full strength" projection at *all approved viewing angles*. Educators like, too, Da-Lite's outstanding mechanical features . . . its sturdy, light weight and long life . . . rich appearance . . . easy 15 second operation . . . clever compactness for space-saving storage. Now being manufactured in increasing numbers. Please check with your Visual Equipment supplier on your requirements for Da-Lite Screens in advance of your needs.



**THOUSANDS IN USE IN
AMERICAN SCHOOLS**

**Sizes and models
for every
projection need**

*Illustration from "Yesterday,
Today and Tomorrow" pro-
duced for H. J. Heinz Com-
pany by Wilding Picture
Productions, Inc.*



Reg. U. S. Pat. Off.

DA-LITE SCREEN CO., INC.
Dept. CB4 2723 N. Crawford Ave., Chicago 39, Ill.

Pioneering IMPROVED PICTURE PROJECTION Since 1909

HIGH QUALITY CABINET SHOWERS



A typical battery installation of Weisway Cabinet Showers

The Weisway Standard Cabinet Shower meets the urgent need for a genuine quality shower. Precision-built of service-tested materials. Walls are 14 B & S gauge aluminum alloy finished white baked-on enamel. Receptor is Armco Iron, one-piece vitreous porcelain enameled, with Foot-Grip, No-Slip floor surface. Meets quality standards required in buildings of best construction.

Mail coupon now for full information. *Weisway Standard Model Cabinet Showers are now available for prompt shipment.*

HENRY WEIS MANUFACTURING CO., INC.
439 Weisway Building, Elkhart, Indiana

Gentlemen: Please send me detailed information about Weisway Standard Cabinet Showers.

Name _____

College or University _____

City _____ State _____



TERRIFIC
TRAFFIC
CALLS FOR
PYRA-SEAL

Dash - Rush - Scramble . . . is the spirit that dominates the younger set. Exuberance! They seldom walk . . . but glide . . . and slide and run. For a floor to stand such punishment you need PYRA-SEAL.



PYRA-SEAL treated floors are as tough as they are beautiful. PYRA-SEAL forms a hard, lustrous seal of protection, giving a durable slip-resistant finish that can stand tremendous punishment from active feet without showing scratch or scar. Impervious to acids, alkalis, alcohol, ink, hot or cold water. PYRA-SEAL is the perfect answer for class rooms, halls, and gym-floors.

VESTAL INC.
ST. LOUIS NEW YORK

The effective answer to your weed problems!

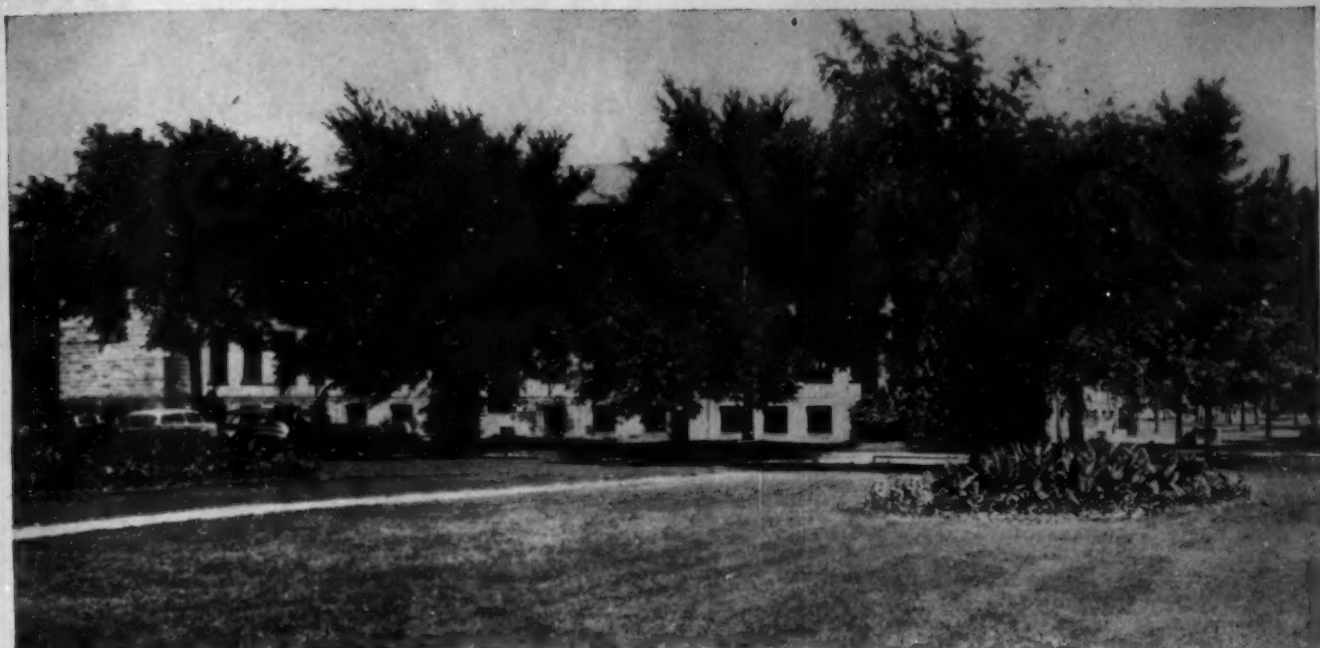


Photo Courtesy of Detroit University, Detroit, Michigan

WEED-NO-MORE 40

AMERICA'S NO. 1 WEED KILLER

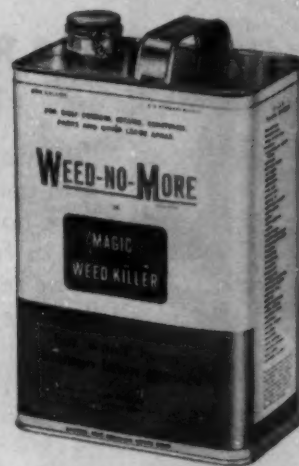
GREENKEEPERS AND SUPERINTENDENTS OF GROUNDS know the value of beautiful weed-free turf. That is why so many are now using and praising Weed-No-More 40.

IT'S EFFECTIVE! One gallon of Weed-No-More 40 concentrate makes 400 gallons of spray, enough to treat two acres. Weed-No-More's butyl ester formula—plus a special emulsifying agent—makes for better adherence to broadleaved weeds and faster absorption by the weed plant, thus producing quicker,

surer, and more effective killing action.

IT'S AVAILABLE NOW! Many of America's best-known golf courses, parks, cemeteries, and schools now use Weed-No-More 40 regularly for beautiful weed-free turf. Safe to use—easy to use—assures savings of hundreds of dollars (on many golf courses, thousands of dollars) compared with previously used methods of weed control.

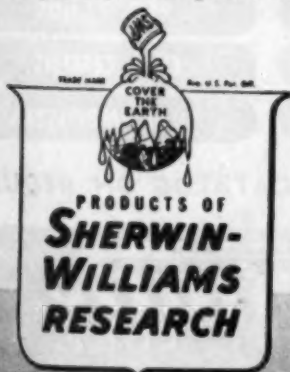
For full information, phone your local dealer, or write any of the companies listed below.



Available in 1-gallon and 5-gallon cans, 55-gallon drums

Write for Free Movies!

Informative 17-minute 16mm full-color sound movie presents actual proof of the remarkable killing action of Weed-No-More. Available for entertainment showings to committees, board meetings. Write Film Dept. D-4 12th Floor Midland Bldg., Cleveland, Ohio.



Can't Get Spray Equipment?

To help you until you can obtain delivery of spray equipment, Sherwin-Williams Research has developed a 50-gallon sprayer that can be easily built in your shop for under \$40. For free plans and specifications, write Dept. D-4, 12th Floor Midland Bldg., Cleveland, Ohio.



Acme White Lead & Color Works, Detroit • W. W. Lawrence & Co., Pittsburgh
The Lowe Brothers Co., Dayton • John Lucas & Co., Inc., Philadelphia • The Martin-Senour Co., Chicago
Rogers Paint Products, Inc., Detroit • The Sherwin-Williams Co., Cleveland



CARILLONIC BELLS

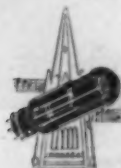
"Its sweet tone has met with general favor, and we have had many calls thanking us for the service its music renders in marking the time of day."

—Ransom E. Olds

In colleges, in universities, as in other communities, the presence of CARILLONIC BELLS adds immeasurably to the dignity and pleasure of each day's procedure. More and more institutions are welcoming this modern electronic carillon, both for its unusual beauty of tone, and for its efficiency in correlating campus life.

CARILLONIC BELLS has a rich brilliance, versatility and accuracy that set it far above ordinary bells or chimes. Yet the instrument is compact, and can be installed in your tower *without additional construction*. Its notes may be heard in their own beauty, or in harmony with an organ; they can sound with whispered softness, or peal out in magnificent volume.

In choosing a carillon choose *by ear*. This is the only true gauge—the gauge that has led thousands to select CARILLONIC BELLS. For further details, please write to us, at Dept. COL-4.



Schulmerich
ELECTRONICS, INC.
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"CARILLONIC BELLS" • TOWER MUSIC SYSTEMS • ACOUSTIC CORRECTION UNITS
SOUND DISTRIBUTION SYSTEMS • CHURCH HEARING AIDS

RUGGEDNESS

Clarín

STEEL
FOLDING
CHAIRS

- ✓ Safe
- ✓ Serviceable
- ✓ Comfortable
- ✓ Sturdy
- ✓ Quiet
- ✓ Stack Compactly



10-YEAR
GUARANTEE

No. 2317-L

Originators of the
Steel Folding Chair.

Write

CLARIN MANUFACTURING COMPANY
4650 W. Harrison St. Chicago 44, Ill.

There are more *Clarín* steel folding chairs in institutional service than any other make

TALK ABOUT FILM ACCESSORIES!

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FILM CABINETS

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FILM RACKS

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REWINDERS

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FREE ILLUSTRATED CATALOG ON REQUEST

Neumade TRADE MARK
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426

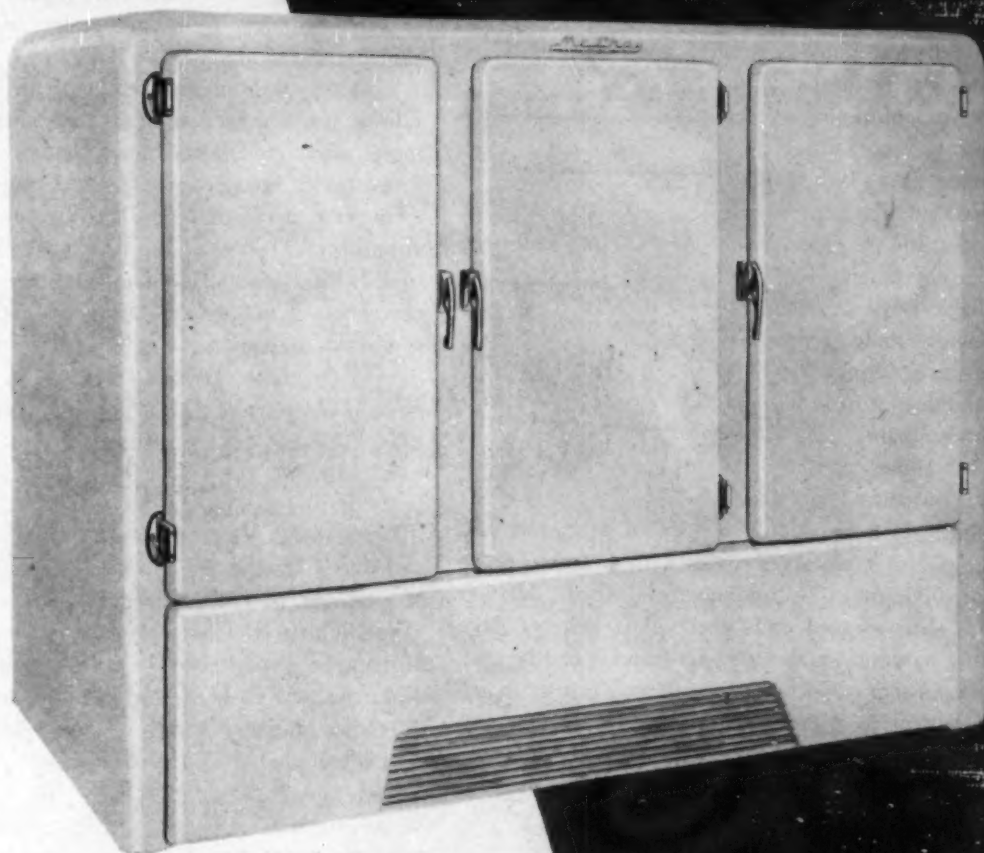
WEST 42 STREET

NEW YORK N.Y.

Go Modern with

McCray

KOLDFLO



New 60-cu. ft. capacity McCray Reach-In Refrigerator—available with solid or glass doors. Also in 40, 30, 20, and 12½ cu. ft. capacities.

...the last word in refrigeration for institutions

McCray triumphantly presents the refrigeration of the future—today! Setting the pace in effective refrigeration, these new 1947 models are a startling combination of new streamlined beauty and practical, low-cost efficiency... featuring these outstanding advances:

- New McCray KOLDFLO "PACKAGED" Refrigeration—a modern, compact, completely self-contained system.
- Smartly styled exteriors finished in two-tone DuPont DuLux and porcelain.
- New, sturdy, reinforced all steel, welded shell construction.

See your McCray distributor for full details about the distinctive new 1947 McCray Reach-In Refrigerators—as modern as tomorrow.

Over 55 years of Refrigeration Pioneering and Leadership.

McCray

KOLDFLO

McCray Refrigerator Company

775 McCray Court • Kendallville, Indiana

WHAT'S NEW.....

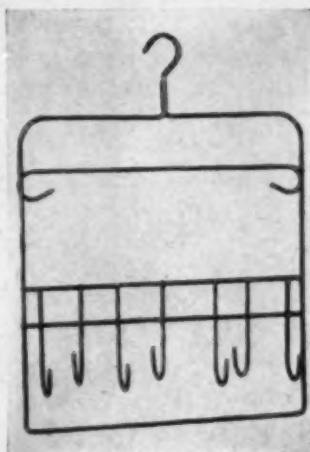
The easiest way to get more information about the new products described in this section is to use the postage paid card opposite page 44. Just circle the key number on the card which corresponds with the number in the headline of each item. COLLEGE and UNIVERSITY BUSINESS will send your request to the manufacturer.

No More

Locker Room Odors, Mildewed Equipment

No longer need locker inspection disclose mildewed and smelly heaps of expensive equipment. A sturdily constructed uniform hanger that keeps clothes aired and is large enough for complete sets of athletic equipment is now available. Its large hooks provide room for every item of equipment in the athletic uniform: shoes, helmets, pants, jerseys and shoulder pads.

Durably constructed of heavy gauge steel wire doubly welded at all joints and wire crossings, this space saver comes with a lacquer finish or a noncorrosive, multi-dip, molten metal finish. Neither finish leaves sharp jagged ends nor will it chip or flake off, according to the manufacturer. Its features of low cost, reduced locker room odors, convenience and proper maintenance of expensive equipment are said to recommend this hanger as desirable for up-to-date athletic departments. —*American Wire Form Company, 269-271 Grant Avenue, Jersey City 5, N. J.*



CUB 179

installed easily by any typewriter mechanic without machining or complicated alterations; normal operation of the typewriter is not disturbed; typists are trained quickly in a few minutes' time without special courses of instruction being required.

Colleges and universities will be interested in the Edison Justifier because of its assistance in preparation of more attractive letters, form letters, booklets, catalogs, manuals and house organs. In fact, any typewritten matter or material normally reproduced by any of the three major duplicating processes that use typewritten text matter—stencil, fluid and offset—can be greatly improved in appearance.—*Justifier Sales Company, 2022 Glendale Boulevard, Los Angeles 26, Calif.*

New Cushion Sheet

Improves Preparation of Stencils

CUB 181

With the development of a new type of cushion sheet announced by the A. B. Dick Company, better visibility is provided in cutting stencils. Known as Mimeograph "Type-White," the new product is for use with the blue Mimeotype stencil sheet. Copies produced from a stencil using the new cushion sheet are said to be clear and easy to read, with sharp letter outlines.—*A. B. Dick Company, 720 West Jackson Boulevard, Chicago 6, Ill.*

This Projector's

Pictures Are Easy on the Eyes

CUB 182

Typewritten Matter

Can Have Straight Margins, Too

CUB 180



No longer need typewritten matter with ragged, jagged right hand margins plague the conscientious typist or offend the sensitive reader. The Edison Margin Justifier, an accessory that can be installed on all standard typewriters now in production, converts any current model typewriter into a justifying composing machine. By means of this device, typewritten matter simulates the appearance of printed matter, the space between the characters in the line being condensed or expanded unnoticeably to bring the lines out to a perfectly straight margin. Moreover, according to the manufacturer, the Edison Justifier can be



Designed around a novel intermittent mechanism, a new 16 mm. sound film projector has been released by the Kolograph Corporation. Called the "Rock-Still" intermittent, the mechanism is said to provide pictures that are easy on the eyes. The new intermittent is completely im-

mersed in oil, runs silently, prevents most film wear, avoids torn sprocket holes, provides smooth action and is guaranteed against all defects and wear, according to the manufacturer of the projector.

Special development of the cooling system permits use of the instrument with a 1250 watt lamp without burning the film or causing appearance of the well known "doorknob"

on the globe. Designed for use from either 117 volt A.C. or D.C. source, this projector features a 2 inch coated lens, f:1.6, as standard equipment. The lens mount, however, will take any other type or size. Because the unit will accommodate 22 inch reels holding up to 4400 feet of film, or the equivalent of about two hours' continuous running, frequent program interruptions are avoided. The audio amplifier employs six tubes in a special trouble free and distortion free circuit and assures that the most exacting musical passages will be reproduced with fidelity.

The amplifier and its associated equipment can be used separately as a public address system and the projector will accommodate silent as well as sound films. The unit, entirely portable, is built into two cases, one containing the projector and the other the loud-speaker.—*Kolograph Corporation, 223 West Maryland Street, Indianapolis, Ind.*

Radio, Electronic Parts

CUB 183

For Classroom, Laboratory, Shop



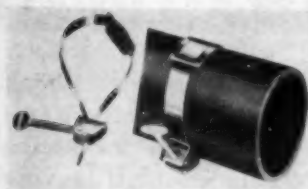
A new 1947 catalog, offering a comprehensive listing of radio and electronic parts and equipment for classroom, laboratory and shop, has been announced by Allied Radio Corporation. More than 10,000 units and parts, completely indexed, are listed in its 164 pages. Every need, from instruments, recording equipment and transcription players to books, manuals, tools, parts, hardware

and miscellaneous equipment, is covered. One section is devoted to electronic sound equipment for school applications, such as data for the proper selection of amplifiers, public address equipment and intercommunication systems for use in classrooms, lecture halls, auditoriums and outdoor stadiums. Too, a complete selection of the latest model radio sets, communications receivers, record players and phonograph and recording accessories is provided.—*Allied Radio Corporation, 833 West Jackson Boulevard, Chicago 7, Ill.*

Here's a Clamp

CUB 184

For Stopping Pipe Leaks



The Patchmaster, a new all purpose pipe leak clamp, is expected to have wide application in the college field. Designed to stop leaks on low or high pressure pipe ranging in

size from 1/2 inch to 4 inches in diameter, the Patchmaster consists of a corrosion resistant, stainless steel Marman Universal clamp, a specially designed patch plate of stainless steel annealed sheet, which forms to the pipe contour naturally, and a Hycar oil resistant pad.

Patchmasters have been tested at 800 pounds' pressure per square inch without leaking. They are available in four popular sizes to handle all pipe diameters up to 4 inches and can be used over and over without any loss of efficiency. One clamp fits any pipe size up to the maximum diameter of the clamp. When installed and clamp is tightened, pressure is brought against the pipe and positively seals the leak, according to the manufacturer.—*Marman Products Company, Inc., 940 West Redondo Boulevard, Inglewood, Calif.*

Jeep for Janitor

CUB 185

To Speed Maintenance Work



"Janitor's Jeep" is the descriptive title conferred on a new product on wheels that should expedite the work of maintenance employees. Capable of conveying materials and equipment up to 1/2 ton quickly to any floor or location, it will speed up the mopping and waxing of large floor areas, the

carrying of ice or refuse, cleaning and similar chores, according to the manufacturer. Standard equipment consists of a 27 gallon, 18 by 26 inch heavy corrugated Witt can and cover, two 14 quart dual pails, a rack for polish can, scrub brushes, rags and other cleaning accessories. Ring supports are provided for carrying brooms and brushes in upright position. The Jeep is of all steel construction with an arc welded frame, has puncture proof tires and a swivel type of front caster for maneuverability. Its over-all dimensions are 32 1/2 by 34 1/2 by 36 inches and it is obtainable in any color desired.—*H. J. Barrett, 1908 Walnut Street, Philadelphia 3, Pa.*

Questions on Glass,

CUB 186

Paint, Metal Answered in New Handbook

Designed to answer all questions concerning the various glass, paint and metal products of the Pittsburgh Plate Glass Company as well as products of the Pittsburgh Corning Corporation, a completely new edition of the Pittsburgh Data Sheet Handbook has been published. Advances made during the war years are contained in this new handbook, which is made up of a pocket sized loose leaf folder; its individual sections on the various products are conveniently indexed for reference. Each copy is registered in the holder's name so that, as new information is available, additional sheets can be issued.

Included are sections on Pennvernon Window Glass, plate glasses, mirrors, Carrara Structural Glass, Pittco Store

Front Metal, PC Glass Blocks, PC Architectural Glass and figured and ornamental glass, together with general information on how to specify the various types. Too, there is a section devoted to the new Twindow Insulating Unit; also an enlarged section on Herculite Heat Tempered Glass Doors. A special section is devoted to Pittsburgh Paints.—*Robert Wardrop, Advertising Manager, Pittsburgh Plate Glass Company, 632 Duquesne Way, Pittsburgh 22, Pa.*

This Gun Shoots Gas

CUB 187

Not Bullets—Target: Insects



Representing an entirely new principle of insect control, the new Commando Aerosol Gun emits a dry gas that is deadly to cockroaches, mosquitos, flies, bedbugs, spiders, moths, fleas, ants, silverfish, weevils and many other insects. It is non-

toxic, however, as proved by the American Research and Testing Laboratories, for it leaves no oily film and will not contaminate food products, says the manufacturer. Moreover, it has no unpleasant odor. Electrically operated on 115 volt A.C. or D.C. current, the gun has no moving parts and does not employ steam.

Together with Commando Aerosol Concentrate, the gun is expected to find wide application in schools and colleges. To operate, the filler cap is removed from the back plate and a charge of the concentrate poured in. A few minutes' heat are required for changing the liquid to gas by means of a thermostatically controlled heating process after which the gun is ready for several hours' operation. Sufficient pump pressure results to discharge the dry gas 8 or 10 feet. The gun weighs 6 pounds, is 12 inches long and 9 inches high and all parts are self contained in its molded plastic case.—*Commando Division, Mayfair Industries, Department S-2, 2442 Irving Park Road, Chicago 18, Ill.*

In Case of Fire

CUB 188

This System Will Warn



Anyone can install the new Fire Detective by Dictograph simply by connecting wires. From the moment of its installation, fire will never catch the building occupants unaware,

says the manufacturer, for, when temperature near a thermal unit reaches 140 degrees, a loud bell starts ringing automatically—and keeps on ringing! In addition to its features of low cost and ease of installation, it works on its own power. It works even when an electric short circuit starts a fire. Fire Detective is powered by war born "R"-Cells the life of which is measured in years, not in months. This alarm system can always be self tested, it is pointed out, and it is on the alert twenty-four hours a day.—*Dictograph Products, Inc., 580 Fifth Avenue, New York 19, N. Y.*

Corporation Organized

CUB 189

For National Distribution of Continuous Forms

Colleges and universities will be interested in the announcement of the formation of Commercial Forms Corporation for the national distribution of continuous forms for use in punched card accounting machines and forms-writing typewriters. The corporation will be the exclusive distributor for Superfold Forms, Inc., which has just completed the equipment of a plant at Mount Vernon, N. Y.—*Commercial Forms Corporation, 50 West Fifty-Seventh Street, New York, N. Y.*

Nylon Tumblers

CUB 190

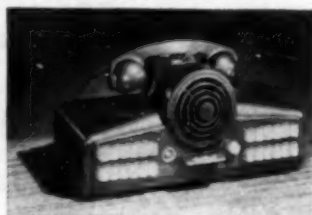
Give Service ad Infinitum

"These tumblers can't be broken or chipped" is a descriptive quotation that should bear great weight in the food service department. The reason for this nonbreakable quality is the material: nylon. These nylon tumblers are featherweight and their luster and color are permanent as might be expected of a nylon product. Their utility for institutional use is far reaching and they will retain their beauty, luster and shape for generations, says their manufacturer. They are available in pastel and in standard colors.—*Continental Hospital Service, Inc., 18636 Detroit Avenue, Cleveland 7, Ohio.*

No "Cross Talk"

CUB 191

On This Electronic Intercom System

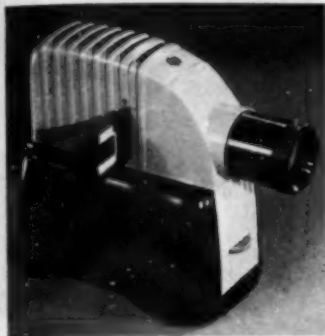


The Amplicall Electronic Intercommunication System, said to mark a significant advance in the design of business communication systems, is announced by the Rauland Corporation. Its distinctive new features include a "visual" busy signal, push buttons of the individual locking type for station selection, an illuminated "on-off" volume control, plug-in cable connections and a balanced line wiring system which not only reduces the cost of installation but also prevents "cross talk."

These new systems are available with facilities for the use of up to 24 master stations, permitting as many as 12 conversations simultaneously. The master station unit can be obtained with or without a hand set which affords completely private conversation. Master stations and sub-stations, in versatile combinations and styled to harmonize, are available to meet the specialized needs of institutions for communication within and between departments. The new Amplicall is housed in a walnut toned plastic case.—*Rauland Corporation, 4245 North Knox, Chicago, Ill.*

New Slide Projector's

Lumenized Optics Increase Screen Brilliance



By means of a microscopically thin coating of magnesium fluoride on the lenses to reduce internal reflection and to increase light transmission, the new Kodaslide Projector, Master Model, is said to deliver more light to the screen, thereby improving the projection of 2 by 2 inch transparencies. Be-

cause its uses range all the way from home to theatrical projection, it is expected to be particularly advantageous on the campus. It is supplied with a 1000 watt projection lamp and can be used with any of four other lamps of from 500 to 750 watts. Five projection lenses are available: a 5 inch f:2.3 Projection Ektar; a 7½ inch f:2.3 Projection Ektar; an 11 inch f:3.7 Projection Ektar; a 5 inch f:3.5 Projection Ektanon, and a 7½ inch f:4 Projection Ektanon. Used with a 1000 watt bulb, the Master Model will project a transparency 76 feet with the 5 inch f:2.3 Ektar lens, yielding a screen image 228 inches wide. The 11 inch f:3.7 Ektar will throw an image 192 inches wide 140 feet.—*Eastman Kodak Company, Rochester 4, N. Y.*

These Luminares

Can Be Cleaned From the Floor

"Minute Maintenance" is a term to catch the eye of maintenance employees and so is the product to which it refers: the new Hinged-Glass Aristolite. This new Guth Luminaire can be cleaned right from the floor by means of the handy servicing tool shown in the illustration. One end of the tool is a simple "gripper" for opening and closing the glass panels; the other is a duster for cleaning the Aristolite. "Minute Maintenance" is said to be so speedy that cleaning of the fixture can be made part of the regular weekly cleaning schedule.



Many steps and much lost motion are saved in servicing the unit by means of the exclusive hinging feature of the Aristolite's glass diffusers. Swung open, the diffusers are held securely on the luminaire while relamping or other work is completed. Thus extra trips up and down ladders are eliminated.

In addition to their low cost maintenance, Guth Hinged-Glass Aristolites provide good quality diffused illumination with exceptionally high lighting efficiency, according to the manufacturer. They are available in two, three or four 40 watt sizes and can be arranged individually or in continuous rows, mounted direct to ceiling or suspended on Guth "One-Man" Hangers.—*The Edwin F. Guth Company, 2615 Washington Avenue, St. Louis, Mo.*

WANT ADVERTISEMENTS

The rates for want advertisements are: 10 cents a word; minimum charge, \$2.50.

Address replies to COLLEGE AND UNIVERSITY BUSINESS, 919 N. Michigan Avenue, Chicago 11, Ill.

POSITIONS WANTED

Business Officer—Business Consultant, former director and officer of large advertising agency, seeks assignment as head of business office of university, college or a large private school; presents exceptional qualifications for management, public relations and the promotion and development of an expanding institution. Write Box CW13, COLLEGE AND UNIVERSITY BUSINESS.

College Administrative Officer—Twenty years' successful experience in budget control, purchasing and physical plant operation, maintenance and development; thoroughly familiar with operation and needs of academic departments and capable of coordinating all phases of college administration; available July 1. Write Box CW14, COLLEGE AND UNIVERSITY BUSINESS.

Comptroller—Professor of Accounting, B.S., 1927, C.P.A. 1931; experience includes eight years college teaching; fifteen years public accounting; seven years state financial official (appointed); and four years in charge of college business offices; served 38 months in U.S. Army during World War II; age 42, married, children aged 3 and 7; now similarly employed in Land Grant college with over 6,000 enrollment, consequently not available in less than 90 days. Write Box CW8, COLLEGE AND UNIVERSITY BUSINESS.

Physical Plant Superintendent or Business Manager. Competent superintendent of buildings, grounds, construction, utilities, farm and recreational areas; efficient manager of administrative business, purchasing, personnel, refectories, food processing and book store; fundamentally trained, fifteen years with a foremost college, extensive heavy construction and commercial business experience. Write Box CW7, COLLEGE AND UNIVERSITY BUSINESS.

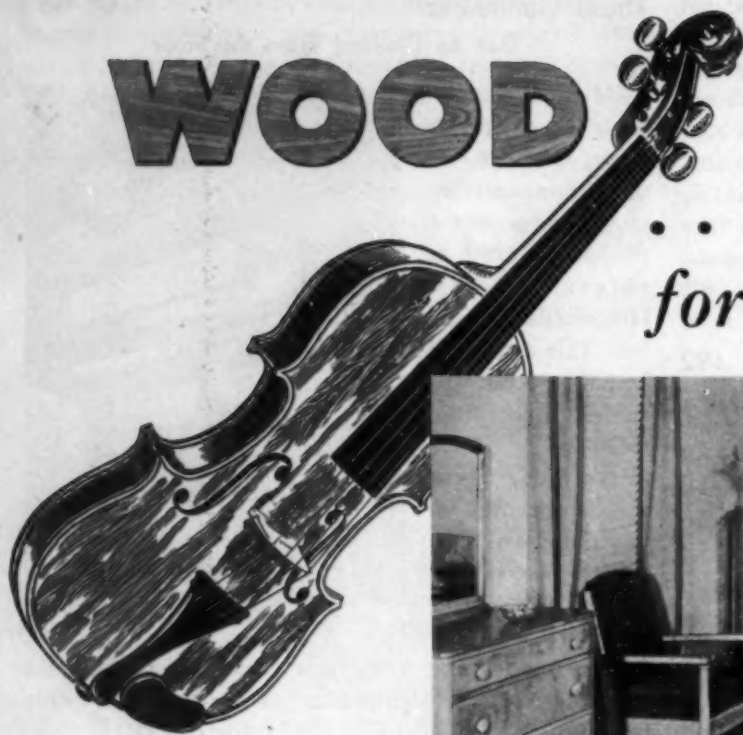
Superintendent of Buildings and Grounds—Graduate architect, member A.I.A. and Asso-

ciation of Superintendents of Buildings and Grounds; 15 years' experience in complete charge of operation, management, maintenance; also architectural work in connection with repairs, alterations, additions and new buildings; available July 1, 1947. Write Box CW15, COLLEGE AND UNIVERSITY BUSINESS.

POSITIONS OPEN

College And University Accountant—A southern state auditing department, charged with responsibility of auditing state colleges and universities, is desirous of securing the services of experienced and well trained accountant capable of assuming responsibility of directing these audits; this position presents challenge to the right man interested in this field of accounting; give full details of experience, training, and salary desired in application. Write Box CO7, COLLEGE AND UNIVERSITY BUSINESS.

WOOD

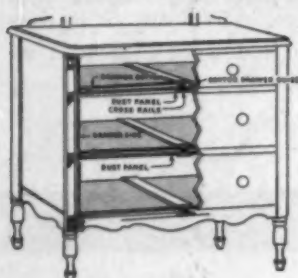


*... unsurpassed
for Basic Harmony*



CARROM FURNITURE CRAFTSMEN

Build **FOR THE DECADES**



**DUST PANEL
UNDER EACH DRAWER**

Carrom furniture is given every good construction feature that cleanliness as well as hard service requires. As an example, cracks, crannies and crevices are eliminated by close, secure fitting of joints and a panel under each drawer not only helps further to keep out dust and dirt but reinforces the entire construction — adding rigidity.

As the violin is unchanging in its contribution to good melody, so too must institutional furniture be so basic in its relationship to successful decorative schemes that years can never affect the artistic certainty that it "belongs."

Carrom Wood Furniture is especially made to meet institutional needs for furniture unchanging in style . . . simple and clean-cut in design. It is created to provide harmony so basic . . . in feeling, balance, appearance and good taste . . . that even decades cannot outmode. Its combination of gentle curves, straight lines and functional adaptability eliminate for the institution risks that must accompany furniture of novel appearance, doubtful and passing styles.

Aside from its basic styling, Carrom Fine Wood Furniture offers enduring strength in smoothly and permanently fitted joints and over-all good construction that years of hard institutional service demand.

Choose the furniture built especially for your requirements and you will choose Carrom Fine Wood Furniture, made by craftsmen who "build for the decades."

CARROM INDUSTRIES, INC., LUDINGTON, MICHIGAN

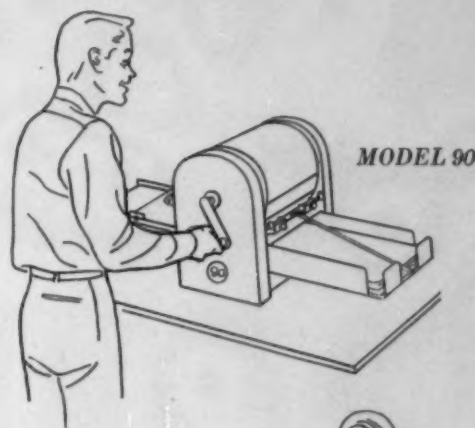
CARROM



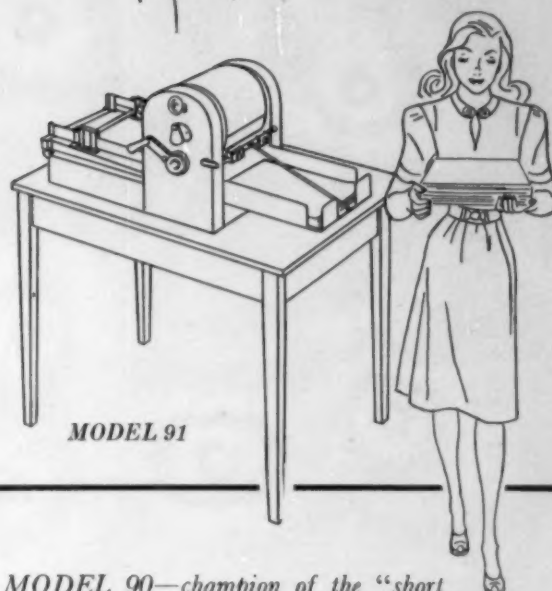
**WOOD FURNITURE
FOR DORMITORY SERVICE**

Delivery now current

*Automatic feed,
hand-operated
Mimeograph
brand duplicators*



MODEL 90



MODEL 91

Yes, you can now get a new Mimeograph brand duplicator.

Yes, you can get prompt delivery (usually less than a week from the time you place your order).

Yes, you can have your choice of models. Both Model 90 and Model 91, shown here, are now available for current delivery.

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